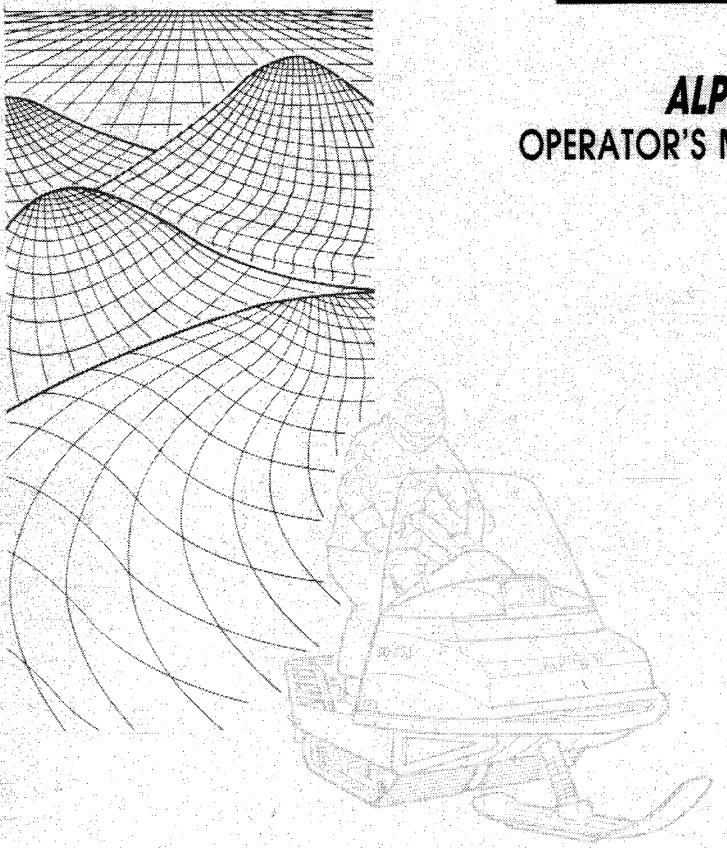
BOMBARDIER ski-doo

ALPINE® II
OPERATOR'S MANUAL



1990

414 6786 00

model _____

V.I.N. _____

purchase date _____

warranty expiry date _____

To be completed by dealer at time of sale

DEALER IMPRINT AREA

AFTER SALES SERVICE
BOMBARDIER INC.
VALCOURT (QUEBEC)
CANADA J0E 2L0

The following are trademarks of Bombardier Inc.

ALPINE®
BOMBARDIER®
ÉLAN®
FORMULA*
NORDIK®
ROTAX®
SKI-DOO®

Litho'd in Canada

®*Trademarks of Bombardier Inc.

All rights reserved © Bombardier Inc.

FOREWORD

The operator manual and the Snowmobile Safety Handbook have been prepared to acquaint the owner/operator or passenger of a new snowmobile with the various vehicle controls, maintenance and safe operating instructions. Each is indispensable for the proper use of the product, and should be kept with the vehicle at all times.

Should you have any questions pertaining to the warranty and its application, please consult the "Often Asked Question" section of this manual, or your authorized dealer.

This manual uses the following symbols.

◆ **WARNING : Identifies an instruction which, if not followed, could cause serious personal injuries including possibility of death.**

▼ **CAUTION : Denotes an instruction which, if not followed, could severely damage vehicle components.**

◯ **NOTE :** Indicates supplementary information needed to fully complete an instruction.

Although the mere reading of such information does not eliminate the hazard, your understanding of the information will promote its correct use.

The information and components/system descriptions contained in this manual are correct at time of publication. Bombardier Inc. however, maintains a policy of continuous improvement of its products without imposing upon itself any obligation to install them on products previously manufactured.

Bombardier Inc. reserves the right at any time to discontinue or change specifications, designs, features, models or equipment without incurring obligation.

The illustrations show the typical construction of the different assemblies and, in all cases, may not reproduce the full detail or exact shape of the parts shown, however, they represent parts which have the same or a similar function.

Most specifications are given in both metric and customary units. Where precise accuracy is not required, some conversions are rounded to even numbers for easier use.

A shop manual can be obtained for complete service, maintenance and repair information.

◆ **WARNING : The engines and the corresponding components identified in this manual should not be utilized on product(s) other than those mentioned on the cover page of this manual.**

◆ **WARNING : Maintenance procedures and tightening torques must be strictly adhered to, never attempt repairs unless the appropriate tools are available.**

▼ **CAUTION : Most components of this vehicle are built with parts dimensioned in the metric system. Most fasteners are metric and must not be replaced by customary fasteners or vice versa. Mismatched or incorrect fasteners could cause damage to the vehicle or possible personal injury.**

TABLE OF CONTENTS

SAFETY MEASURES 5
THE 1990 "LIMITED WARRANTY" 6
OFTEN ASKED QUESTIONS 8
LISTING OF AREA DISTRIBUTORS 10
HOW TO IDENTIFY YOUR SNOWMOBILE 11
CONTROLS/INSTRUMENTS 12

Throttle lever
Brake lever
Parking brake lever
Ignition switch
Headlamp dimmer switch
Emergency cutout switch
Rewind starter handle
Primer
Adjustable steering handle
Gear shift lever
Speedometer
Trip meter reset button
High beam pilot lamp
Hood opening
Console
Fuel gauge/tank cap
Seat compartment
Fuse holder
Hitch
Accessories

BREAK-IN PERIOD 18

Engine and belt break-in
10 hour-inspection
Break-in fuel/oil mixing charts
Inspection check list

FUEL & OIL 21

Recommended fuel
Recommended oil
Fuel mixture ratio
Fuel mixing procedure
Fuel/oil mixing charts

PRE-START CHECK 24

Check points

STARTING PROCEDURE 24

Manual starting
Electric starting
Before riding
Emergency starting

LUBRICATION **26**

Frequency
Steering mechanism
Drive axles
Driven pulley
Slide suspension
Hitch sliding action
Gearbox oil level

MAINTENANCE **31**

Chart
Belt guard removal
Drive belt removal and installation
Drive belt condition
New drive belt
Brake condition
Brake adjustment
Spark plugs
Battery
Suspension condition
Stopper strap condition
Suspension adjustment
Track condition
Track tension and alignment
Drive pulley
Steering mechanism
Steering adjustment
Muffler attachment
Engine head nuts
Engine mount nuts
Carburetor adjustment
High altitude kit
Fan belt
Drive chain tension
Headlamp beam aiming
Bulb replacement
General inspection

STORAGE **44**

Tracks
Suspension
Ski
Controls
Gearbox
Drive pulley
Engine
Fuel tank and carburetor
Battery
Chassis
General inspection
Suspension stopper strap

PRE-SEASON PREPARATION **48**

Pre-season preparation chart

TROUBLE SHOOTING **49**

TOOLS **52**

SPECIFICATIONS **53**

SI METRIC INFORMATION GUIDE **55**

Observe the following precautions:

- Throttle mechanism should be checked for free movement before starting engine.
- Do not operate vehicle near snow making equipment.
- Engine should be running only when belt guard and/or pulley guard is secured in place.
- Never run the engine without drive belt installed. Running an unloaded engine can prove to be dangerous.
- Never run the engine when the track is raised off the ground.
- It can be dangerous to run engine with the hood removed.
- Gasoline is flammable and explosive under certain conditions. Always manipulate in a well ventilated area. Do not smoke or allow open flames or sparks in the vicinity. If gasoline fumes are noticed while driving, the cause should be determined and corrected without delay.
- Maintain your vehicle in top mechanical condition at all times.
- Your snowmobile is not designed to be driven or operated on black top, bare earth, ice, hard pack or other abrasive surfaces. On such surfaces abnormal and excessive wear of critical parts is inevitable.
- Your snowmobile is not designed to be operated on public streets, road or highways. In most States and Provinces, it is considered an illegal operation.
- Installation of other than standard equipment, including ski-spreaders, bumpers, pack racks, etc., could severely affect the stability and safety of your vehicle. Avoid adding on accessories that alter the basic vehicle configuration.
- The snowmobile engine can be stopped by activating the emergency cut-out switch, tether switch or by turning off the key.
- Whenever the vehicle is parked outdoors, overnight or for a long period, it is suggested to protect it against the inclemency of the weather with a snowmobile cover.
- Do not lubricate throttle and/or brake cables and housings.
- Only perform procedures as detailed in this manual. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.
- Clean and check operation of the headlight, taillight and brake light.
- These vehicles are designed for the driver only. No provisions have been made for a passenger.
- Should removal of a locking device be required when undergoing repairs/disassembly, always replace by new ones. Tighten fasteners as specified in the applicable Shop Manual.

PLEASE READ AND UNDERSTAND ALL WARNINGS AND CAUTIONS IN THE SNOWMOBILER'S SAFETY HANDBOOK, THE OPERATOR'S MANUAL AND ON THE VEHICLE

BOTH MANUALS SHOULD REMAIN WITH THE VEHICLE AT THE TIME OF RESALE

THE 1990 SNOWMOBILE LIMITED WARRANTY

1 - PERIOD

BOMBARDIER INC. as manufacturer, warrants FROM THE DATE OF DELIVERY TO THE FIRST CONSUMER, every 1990 BOMBARDIER® snowmobile, sold as NEW AND UNUSED, and predelivered by an authorized BOMBARDIER® dealer for a period of :

- 12 consecutive months.
- Warranty coverage on all new snowmobiles delivered between August 1st and December 1st of a year will expire on December 1st of the following year.

2 - WHAT BOMBARDIER INC. WILL DO

BOMBARDIER INC. will repair and/or replace, at its option, components defective in material and/or workmanship (under normal use and service), with a genuine BOMBARDIER® component without charge for parts or labour, at any authorized BOMBARDIER® dealer during said warranty period.

3 - CONDITION TO HAVE WARRANTY WORK PERFORMED

Present to the servicing dealer, the hard copy of the BOMBARDIER® Warranty Registration card or proof of purchase received by the customer from the selling dealer at time of delivery.

4 - EXCLUSIONS - ARE NOT WARRANTED

- Normal wear on all items such as, but not limited to :
  - drive belts
  - bulbs
  - slider shoes
  - runners on skis
  - spark plugs
- Replacement parts and/or accessories which are not genuine BOMBARDIER® parts and/or accessories.
- Damage resulting from installation of parts other than genuine BOMBARDIER® parts.
- Damage caused by failure to provide proper maintenance as detailed in the Operator's Manual. The labour, parts and lubricants costs of all maintenance services, including tune-ups and adjustments will be charged to the owner.
- Cold seizure and piston scuffing caused by insufficient warm-up.
- Vehicles designed and/or used for racing purposes.
- All optional accessories installed on the vehicle. (The normal warranty policy for parts and accessories, if any, applies).
- Damage resulting from accident, fire or other casualty, misuse, abuse or neglect.
- Damage resulting from operation of the snowmobile on surfaces other than snow.
- Damage resulting from modification to the snowmobile not approved in writing by BOMBARDIER INC.
- Damage incurred by track studs.
- Losses incurred by the snowmobile owner other than parts and labour, such as, but not limited to, transportation, towing, telephone calls, taxis, or any other incidental or consequential damage.

5 - BATTERY WARRANTY :

- 12 consecutive months (Pro-rated).

  100% warranty coverage will start on the date the snowmobile was delivered and run to the following April 30th. The remainder of the 12 month-period will be pro-rated as follows :

  — 50% from April 30th to December 1st.
  — 40% from December 1st to December 31st.
  — 30% from January 1st to end of warranty.

6 - EXPRESSED OR IMPLIED WARRANTIES

This warranty gives you specific rights and you may also have other legal rights which may vary from state to state, or province to province. Where applicable this warranty is expressly in lieu of all other expressed or implied warranties of BOMBARDIER INC., its distributors and the selling dealer, including any warranty of merchantability or fitness for any particular purpose ; otherwise the implied warranty is limited to the duration of this warranty. However, some states or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply.

Neither the distributor, the selling dealer, nor any other person has been authorized to make any affirmation, representation or warranty other than those contained in this warranty, and if made, such affirmation, representation or warranty shall not be enforceable against BOMBARDIER INC. or any other person.

Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply.

BOMBARDIER INC. reserves the right to modify its warranty policy at any time, being understood that such modification will not alter the warranty conditions applicable to vehicles sold while the above warranty is in effect.

7 - CONSUMER ASSISTANCE

If a servicing problem or other difficulty occurs, we suggest the following :

1. Try to solve the problem at the dealership with the Service Manager or Owner.
2. If this fails, contact your area distributor listed in the Operator's Manual.
3. Then if your grievance still remains unsolved, you may write to us :

Bombardier Inc.
Service Department
Snowmobile Division
Valcourt, Quebec, Canada J0E 2L0

September 1988
Bombardier Inc.
Valcourt, Quebec, Canada J0E 2L0

®*Trademarks of Bombardier Inc.

OFTEN ASKED QUESTIONS

Q : Why must my snowmobile be registered at the factory ? After all I do have my original invoice as proof of when I purchased my snowmobile.

A : Your warranty is valid at any authorized dealer of the product. Your registration is the key element in providing the servicing dealer with the necessary data to complete warranty claim forms. This information is also used to notify owners in the event of a safety recall.

Q : Who should send the registration card to Bombardier Inc. ?

A : The dealer. However, it is important that the customer make sure that it has been sent. The company might contact you should your vehicle be recalled or in case of a particular warranty campaign.

Q : I bought my snowmobile in O'King County but I snowmobile in Washington County. Can the dealer in Washington County accept to perform warranty work on my snowmobile ?

A : Yes, any authorized dealer in North America can perform warranty repairs, providing the customer warranty registration card is presented.

Q : Where can I find information on the lubrication and maintenance of my snowmobile ?

A : In this Operator Manual provided with the vehicle at the time of delivery.

Q : Will the entire warranty be void or cancelled, if I do not operate or maintain my new snowmobile exactly as specified in the Operator's Manual ?

A : The warranty of the new snowmobile cannot be "Voided" or "Cancelled". However, if a particular failure is caused by operation or maintenance other than is shown in the Operator Manual, THAT failure may not be covered under warranty. This includes service work performed by the customer, especially the critical adjustments to ignition, timing, carburation and oil injection/or oil mixture.

Q : Would you give some examples of abnormal use or strain, neglect or abuse ?

A : These terms are general and overlap each other in areas. Some specific examples may include : running the machine out of oil, chain failure caused by a lack of lubrication, operating the machine with a broken or damaged part which causes another part to fail, and so on. If you have any specific questions on operation or maintenance, please contact your dealer for advice.

Q : What costs are my responsibility during the warranty period ?

A : The customer's responsibility includes all costs of normal maintenance services, non-warranty repairs, accidents and collision damage, as well as oils, and spark plugs, and incidental or consequential damages costs as explained in the warranty.

Q : Are "Genuine" Bombardier replacement parts used in warranty repairs covered by warranty ?

A : Yes. When installed by an authorized dealer, any "Genuine" Bombardier part used in warranty repairs assumes the remaining warranty that exists on the machine.

Q : If I sell my snowmobile within the warranty period, will the new owner qualify for the balance of the warranty ?

A : Yes, provided the unit has already been registered with the manufacturer. Note that the change of ownership card in this manual should be completed and sent to Bombardier Inc.

Q : How can I receive the best owner assistance ?

A : The satisfaction and goodwill of the owners of Bombardier products are of primary concern to your dealer and Bombardier Inc. Normally, any problems that arise in connection with the sales transaction or the operation of your snowmobile will be handled by your Dealers Sales or Service Departments. It is recognized, however, that despite the best intentions of everyone concerned, misunderstandings will sometimes occur. If you have a problem that has not been handled to your satisfaction through normal channels, we suggest that you discuss your problem with a member of dealership management. Frequently, complaints are the result of a breakdown in communications and can quickly be resolved by a member of the dealership management. If the problem already has been reviewed with the Sales Manager or Service Manager, contact the Dealer himself or the General Manager.

LISTING OF AREA DISTRIBUTORS

CANADIAN DISTRIBUTORS

PROVINCE OF QUEBEC

SERVICE OFFICE
BOMBARDIER INC.
Valcourt (Quebec) J0E 2L0
(514) 532-2211

SALES OFFICE
BOMBARDIER INC.
1350 Nobel Street
Boucherville (Quebec) J4B 1A1
(514) 655-6121

PROVINCE OF ONTARIO

SERVICE AND SALES OFFICE
BOMBARDIER INC.
230 Bayview Drive
Barrie (Ontario) L4N 5E9
(705) 728-8600

ATLANTIC REGION

SERVICE OFFICE
BOMBARDIER INC.
P.O. Box 7060
Riverview (New Brunswick) E1B 1V0
(506) 386-6117

SALES OFFICE
BOMBARDIER INC.
1350 Nobel Street
Boucherville (Quebec) J4B 1A1
(514) 655-6121

ALBERTA, BRITISH COLUMBIA, MANITOBA, SASKATCHEWAN, YUKON

SERVICE AND SALES OFFICE
BROOKS EQUIPMENT LIMITED
1616 King Edward Street
P.O. Box 985
Winnipeg (Manitoba) R3C 2V8
(204) 633-7247

NEWFOUNDLAND, LABRADOR

SERVICE AND SALES OFFICE
CHARLES R. BELL LIMITED
Riverside Drive
P.O. Box 1050
Corner Brook (Newfoundland) A2H 6J7
(709) 634-3533

NORTH-WEST TERRITORIES, FRANKLIN DISTRICT & KEEWATIN

SERVICE AND SALES OFFICE
HUDSON'S BAY CO. LIMITED
165 Hymus Blvd
Pointe-Claire (Quebec) H9R 1G2
(514) 630-5279

AMERICAN DISTRIBUTORS

EAST-CENTRAL, CENTRAL, WESTERN REGION

SALES OFFICE
BOMBARDIER CORPORATION
7575 Packer Drive
P.O. Box 8035
Wausau, Wisconsin 54402-8035
U.S.A.
(715) 842-8886

EAST-CENTRAL, CENTRAL REGION

SERVICE OFFICE
BOMBARDIER CORPORATION
4505 West Superior Street
P.O. Box 16106
Duluth, Minnesota 55816-0106
U.S.A.
(218) 628-2881

WESTERN REGION

SERVICE OFFICE
BOMBARDIER CORPORATION
P.O. Box 1572
Golden, Colorado 80402-1572
U.S.A.
(303) 232-5284

EASTERN REGION

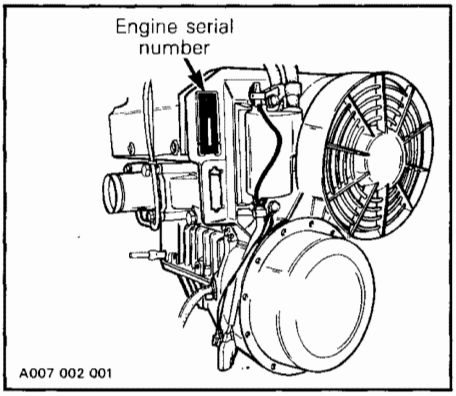
SERVICE AND SALES OFFICE
BOMBARDIER CORPORATION
East Main Street Road
Malone, New York 12953
U.S.A.
(518) 483-4411

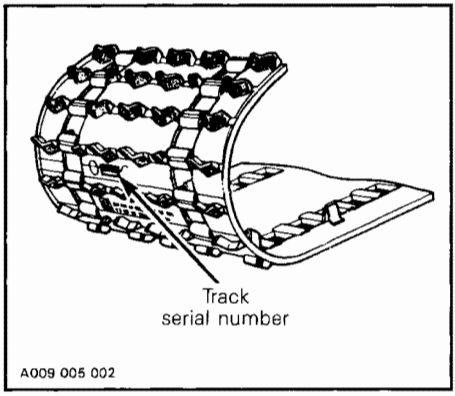
ALASKA

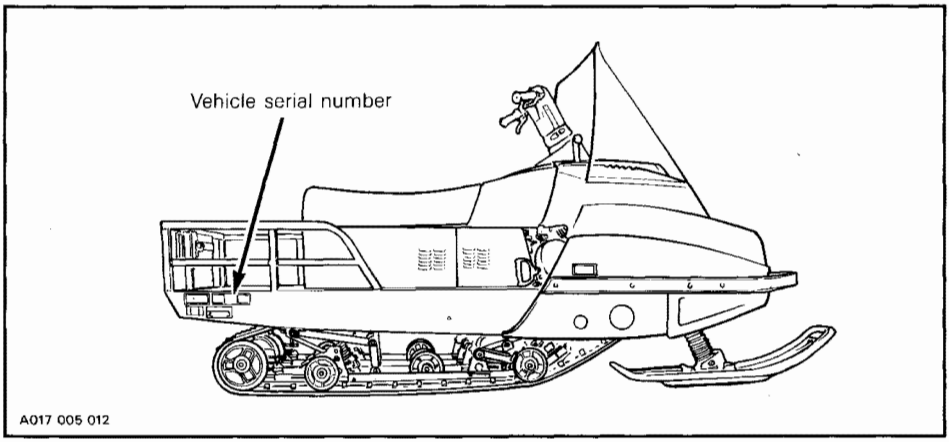
SERVICE AND SALES OFFICE
THE BRYANT CORPORATION
NE. 190th & Woodinville
Snohomish Road
P.O. Box 389
Woodinville, Wa 98072
U.S.A.
(206) 482-0110

HOW TO IDENTIFY YOUR SNOWMOBILE

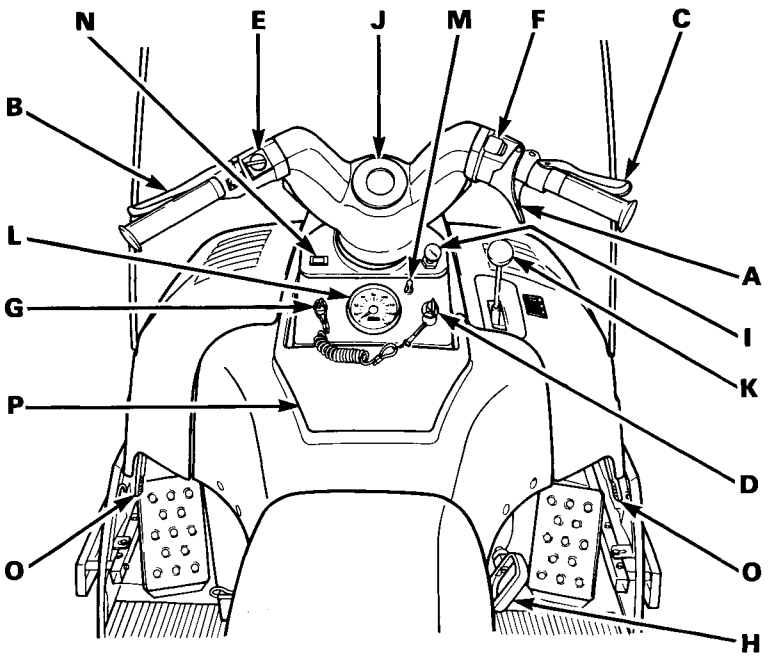
The main components of your snowmobile (engine, track and frame) are identified by different serial numbers. It may sometimes become necessary to locate these numbers for warranty purposes or to trace your snowmobile in the event of loss.







NOTE : We strongly recommend that you take note of all the serial numbers on your vehicle and supply them to your insurance company. It will surely help in the event your snowmobile is stolen.



A) Throttle lever
B) Brake lever
C) Parking brake lever
D) Ignition switch
E) Headlamp dimmer switch
F) Emergency cut-out switch
G) Tether cut-out switch
H) Rewind starter handle
I) Primer
J) Adjustable steering handle
K) Gear shift lever
L) Speedometer
M) Trip meter reset button
N) High beam pilot lamp
O) Hood opening
P) Console

A) Throttle Lever

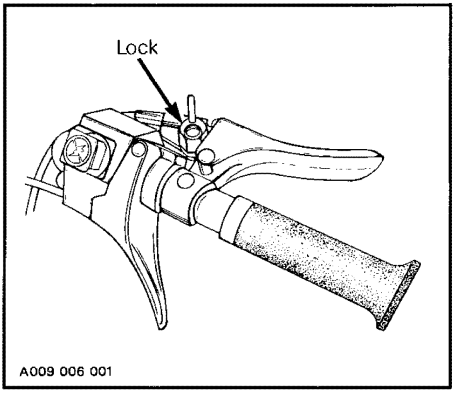
Located on the right side of handlebar. When compressed, it controls the engine speed and the engagement of the transmission. When released, engine speed returns automatically to idle.

B) Brake Lever

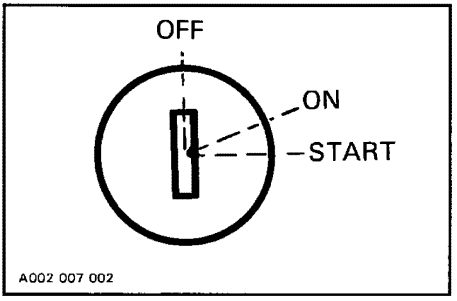
Located on the left side of handlebar. When compressed, the brake is applied. When released, it automatically returns to its original position. Braking effect is proportionate to the pressure applied on the lever and to the type of terrain and its snow coverage.

C) Parking Brake Lever

Located on right side of handlebar. To engage parking brake, squeeze lever and turn lock clockwise. To release, turn lock counterclockwise.



D) Ignition Switch



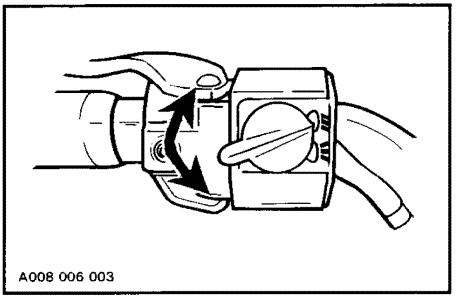
Key operated, 3 position switch. To start engine, turn key to START position and hold. Return key to ON position immediately when engine has started. To stop engine, turn key to OFF position. If engine does not start on first try, key must be turned fully back to OFF each time.

▼ CAUTION : Holding key in START position when engine has started could damage starter mechanism.

The lights are automatically ON whenever the engine is running.

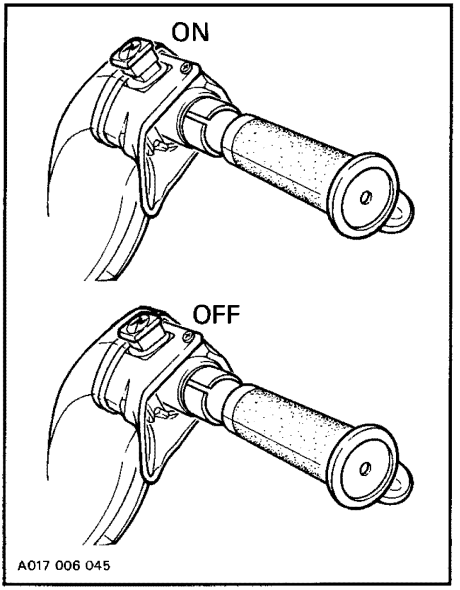
E) Headlamp Dimmer Switch

Two position switch, located on left side of handlebar. To obtain high or low beam simply flick switch.



F) Emergency Cut-Out Switch

A push pull type switch located on the right side of the handlebar. To stop the engine in an emergency, push the button to the lower off position and simultaneously apply the brakes. To start engine, button must be at the upper on position.



◆ **WARNING : For safety reasons, the emergency cut-out switch is easily accessible ; be careful not to operate it inadvertently. If the switch has been used in an emergency situation the source of malfunction should be determined and corrected before restarting engine.**

The driver of this vehicle should familiarize himself with the function of this device by using it several times on first outing. Thereby being mentally prepared for emergency situations requiring its use.

G) Tether Cut-Out Switch

A pull switch located below the handlebar.

Attach tether cord to wrist or other convenient location then snap tether cut-out cap over receptacle before starting engine.

If emergency engine **"shut off"** is required, completely pull cap from safety switch and engine power will automatically shut off.

◯ **NOTE :** The cap must be installed on the safety switch at all times in order to operate the vehicle.

◆ **WARNING : If the switch is used in an emergency situation the source of malfunction should be determined and corrected before restarting engine.**

H) Rewind Starter Handle

Auto rewind type located on right hand side of vehicle. To engage mechanism, pull handle, slowly until a resistance is felt then pull vigorously.

I) Primer

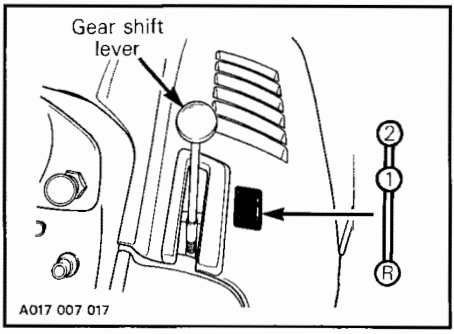
Pull and push button (2-3 times) to start a cold engine. Not necessary when engine is warm.

J) Steering Handle

Steering handle height is adjustable, see your authorized dealer.

K) Gear Shift Lever

The gear shift lever is located right side of the dashboard. It is a 3-position lever : 2 forward and 1 reverse. Pull lever upwards before selecting position.



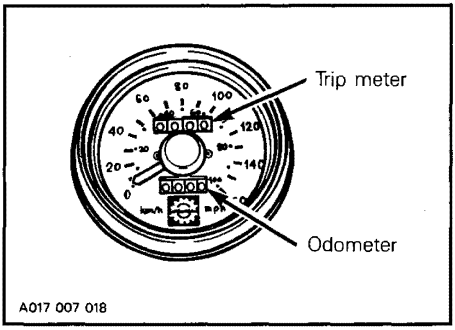
◆ **WARNING : This snowmobile is capable of a fast reverse. Operator should become familiar with this operation by practicing on level ground. Always apply the brake before shifting and come to a complete stop then, while holding brake on, change gear. Ensure the path behing is clear of obstacles or bystanders. Fast reverse, while turning, could result in loss of stability.**

L) Speedometer/Odometer/ Trip Meter

The speedometer indicates the speed of the vehicle in kilometers per hour. Odometer records the total number of kilometers travelled. A trip meter is also combined with speedometer.

M) Trip Meter Reset Button

The trip meter button is located in dashboard right to speedometer. To reset, turn button clockwise until all numbers read zero.



N) High Beam Pilot Lamp

Lights up when headlamp is on high beam.

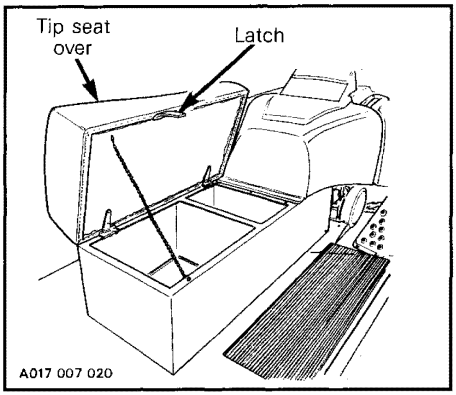
O) Hood Opening

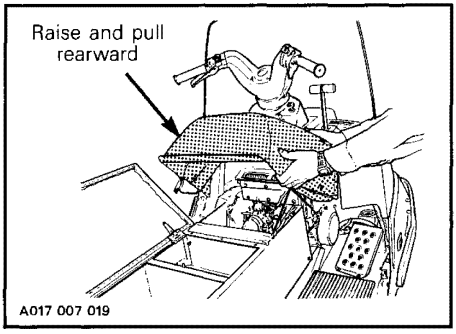
Pull down the latches to unlock the hood from the anchors. Always lift hood gently up until stopped by restraining device.

◆ **WARNING : It is dangerous to run an engine with the hood opened, unfastened or removed.**

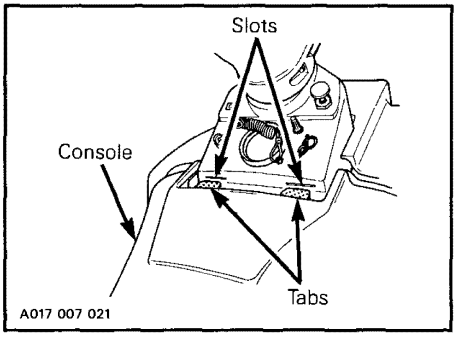
P) Console

To gain access to the engine, carburetor and spark plugs, pull down the latch and tip seat over from right, raise rear part of console then pull rearward.





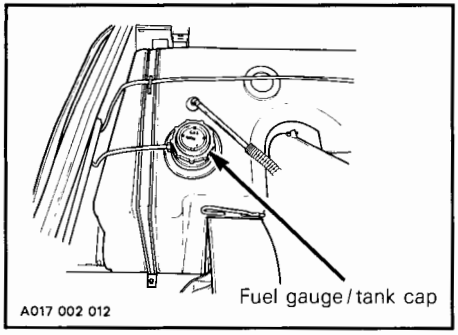
When installing console to vehicle, ensure to insert console tabs into dashboard slots.



Fuel Gauge/Tank Cap

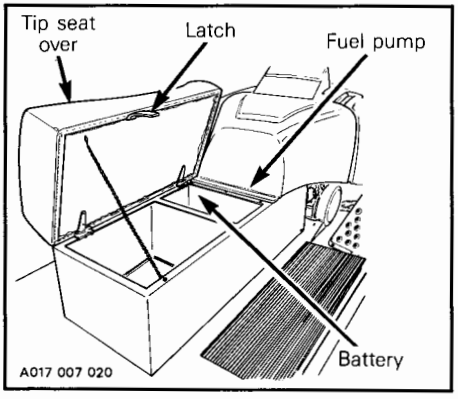
Under the hood, the fuel tank cap features a built-in needle fuel level gauge which indicates the amount of fuel remaining in tank.

◆ **WARNING : Remove fuel tank cap slowly. Fuel may be under pressure and spray may cause fire and injuries. Never use open flame to check fuel level.**



Seat Compartment

Pull down the latch and tip seat. Ideal location for spare spark plugs, belt, rope etc.



○ NOTE : Emergency materials should be wrapped in foam or similar material. This will prevent possible damage to breakable items when travailling over rough or bumpy terrain.

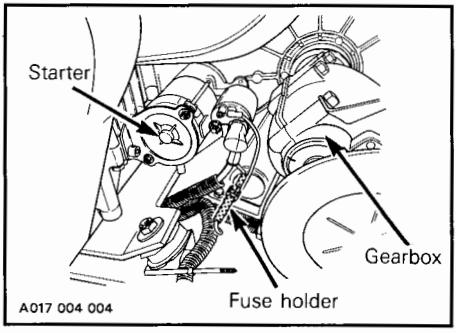
Battery/Fuel Pump Compartment

Battery and fuel pump are located in front portion of seat compartment.

◆ **WARNING : Do not store anything in the battery/fuel pump compartment.**

Fuse Holder

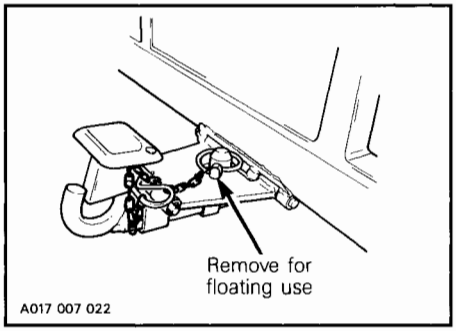
Starting system is protected with 30 amperes rated fuse. Fuse holder is located near starter and gearbox. If starter does not operate, check fuse condition and replace by the same rate if necessary.

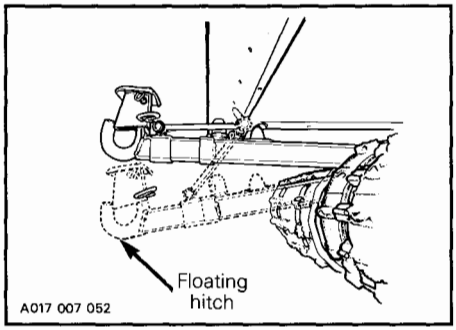


Hitch

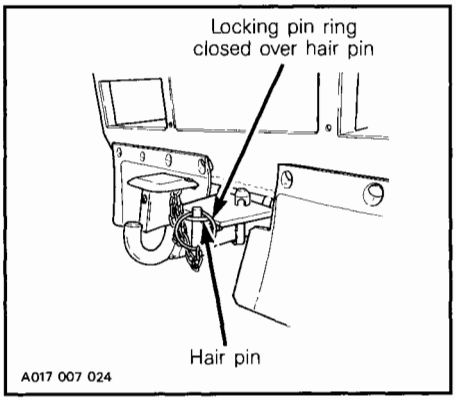
A hook-type hitch is provided to pull most equipments. The hitch may be used fixed or floating depending the type of equipment towed. This allows smooth operation when towing a load.

While towing a trailer with a fixed draw bar, keep the hitch locked. With a floating draw bar, allow the hitch to move up and down by removing its locking pin.



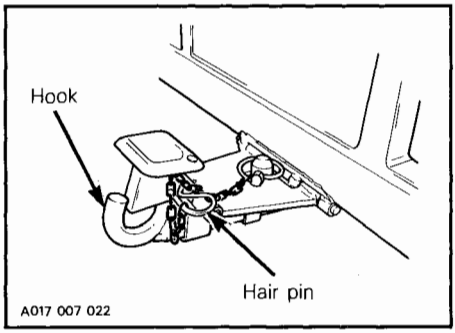


The locking pin can be installed into hair pin when the hitch is used floating.



NOTE : To maintain the hitch locked, install the locking pin into hitch post and place its flat side against the hitch plate.

A hair pin is provided to lock the hook of the hitch.



WARNING : When towing any sled or trailer, always ensure to lock the hook type attachment with the hair pin.

Trailers or sleds towed behing a snowmobile should always be loaded with the lowest possible center of gravity. Use a sled with a rigid draw bar. When pulling passengers in a tower vehicle, drive at moderate speed and avoid rough terrain for their safety. Besides, have all passengers get out of the towed vehicle and walk across all roads.

Accessories

Some optional accessories might be added to your vehicle such as horn, hourmeter, long seat with backrest, linen cabin kit, tongue type hitch, etc. Ask your authorized dealer for more information.

BREAK-IN PERIOD

Engine

With Bombardier-Rotax snowmobile engines, a break-in period is required before running the vehicle at full throttle. Engine manufacturer recommendation is 10 to 15 operating hours. During this period, a richer mixture is needed (i.e. 40 parts of gas for 1 part of BLIZZARD oil). Maximum throttle should not exceed 3/4, however, brief full acceleration and speed variations contribute to a good break-in. Continued wide open throttle accelerations, prolonged cruising speeds, and engine over-heating are detrimental during the break-in period.

▼ CAUTION : Remove and clean spark plugs after engine break-in.

Belt

A new drive belt requires a break-in period of 25 km (15 miles).

10-Hour inspection

As with any precision piece of mechanical equipment, we suggest that after the first 10 hours of operation or 30 days after the purchase, whichever comes first, that your vehicle be checked by your authorized dealer. This inspection will give you the opportunity to discuss the unanswered questions you may have encountered during the first hours of operation.

The 10-hour inspection is at the expense of the vehicle owner.

Break-in Fuel/Oil Mixing Charts

▼ CAUTION : The following chart only applies to break-in period to give a richer mixture of 40 to 1 ratio.

SI UNITS

500 mL oil to 20 liters= 40:1

IMPERIAL UNITS

16 oz oil to 4.6 imp. gal= 40:1

or

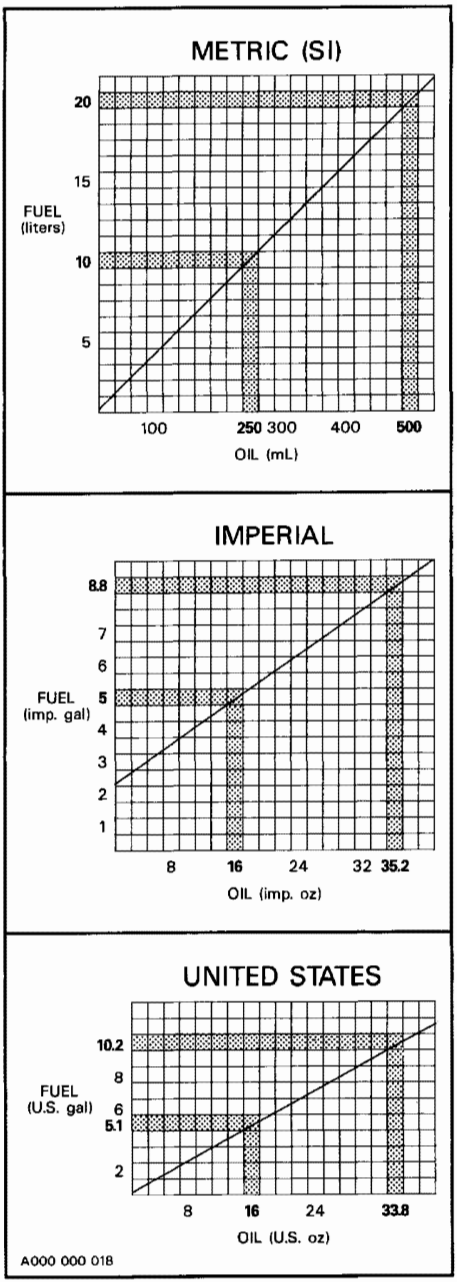
500 mL oil to 4.8 imp. gal= 40:1

U.S. UNITS

16 oz oil to 5.1 U.S. gal= 40:1

or

500 mL oil to 5.3 U.S. gal= 40:1



10-HOUR INSPECTION CHECKLIST	✓
Engine timing	
Fan belt tension	
Spark plugs condition (Remove and clean)	
Carburetor adjustment	
Engine head nuts	
Drive pulley screw (torque)	
Engine mount nuts	
Muffler attachment	
Gearbox oil level	
Drive chain tension	
Battery electrolyte level	
Brake operation and lining condition	
Ski alignment (runner condition)	
Handlebar bolts, retorque to 26 N•m (19 lbf•ft)	
Pulley alignment and drive belt condition	
Track condition, tension and alignment	
Lubrication (steering, suspension, drive axles, etc.)	
Electrical wiring, tighten all loose bolts, nuts and linkage	
Operation of lighting system (HI/LO beam, brake light, etc.), test operation of emergency cut-out switch and tether switch	

We recommend that you have your dealer sign this inspection list.

Date of 10-hour inspection

Dealer signature

Oil must be added to the fuel in premeasured amounts then both oil and fuel should be thoroughly mixed together before fueling the tank.

Recommended fuel

Use regular leaded or unleaded gasoline available from all service stations or gasohol with less than 10% of ethanol.

◆ **WARNING : Remove fuel tank cap slowly. Fuel may be under pressure and spray may cause fire and injuries. Fuel is flammable and explosive under certain conditions. Always manipulate in a well ventilated area. Do not smoke or allow open flames or sparks in the vicinity.**

▼ **CAUTION : Never experiment with other fuels or fuel ratios. The use of fuel containing methanol, or similar products including naphta is not recommended. The use of unrecommended fuel can result in vehicle performance deterioration and damage to critical parts in the fuel system and engine components.**

◆ **WARNING : Never "top up" the fuel tank before placing the vehicle in a warm area. At certain temperatures, fuel will expand and overflow. Always wipe off any fuel spillage from the snowmobile.**

Recommended oil

Use "BLIZZARD OIL" (P/N 496 0135 00 - 500 mL) available from your dealer. This type of oil will flow at temperatures as low as −40°C (−40°F).

If "BLIZZARD OIL" is unavailable, substitute with "Bombardier injection oil" (P/N 496 0133 00 – 1 liter or equivalent).

▼ **CAUTION : Never use outboard or straight mineral oils.**

Fuel mixture ratio

The importance of using the correct fuel mixture cannot be overstressed. An incorrect fuel/oil ratio results in serious engine damage. Recommended fuel/oil ratio is 50:1 (40:1 during break-in period, refer to "break-in period" section for mixing chart).

SI UNITS

500 mL oil to 25 liters= 50:1

IMPERIAL UNITS

16 oz oil to 5 imp. gal= 50:1

or

500 mL oil to 5-1/2 imp. gal= 50:1

U.S. UNITS

13 oz oil to 5 U.S. gal= 50:1

or

500 mL oil to 6.6 U.S. gal= 50:1

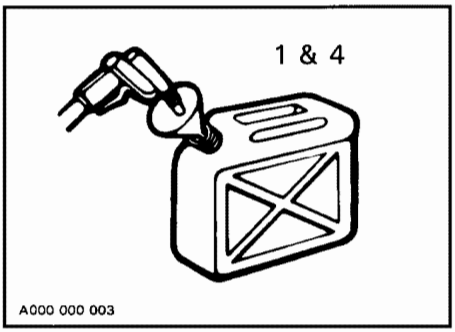
◯ **NOTE :** To facilitate gas mixing, oil should be kept at room temperature.

Fuel mixing procedure

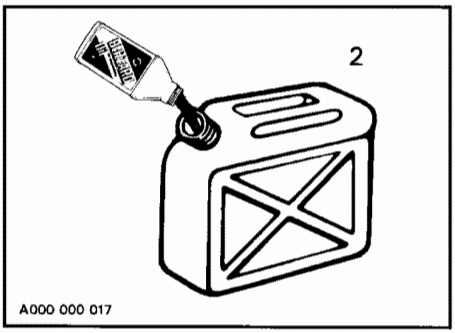
To mix the fuel and oil always use a separate clean container. Never mix directly in your snowmobile tank.

◆ **WARNING : Fuel is flammable and explosive under certain conditions. Always manipulate in a well ventilated area. Do not smoke or allow open flames or sparks in the vicinity. If fuel fumes are noticed while driving, the cause should be determined and corrected without delay. Never add fuel while the engine is running. Avoid skin contact with fuel at below freezing temperatures.**

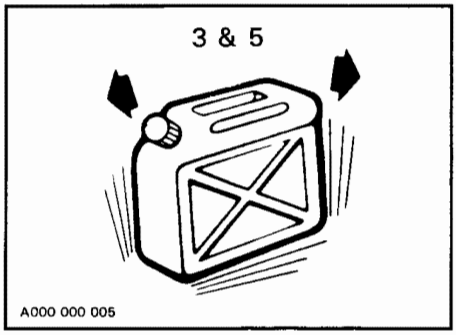
1. Pour approximately 4 liters (one gallon) of fuel into a clean container.



2. Add the amount of oil required for the total mixture.



3. Replace the container cap and shake the container thoroughly.

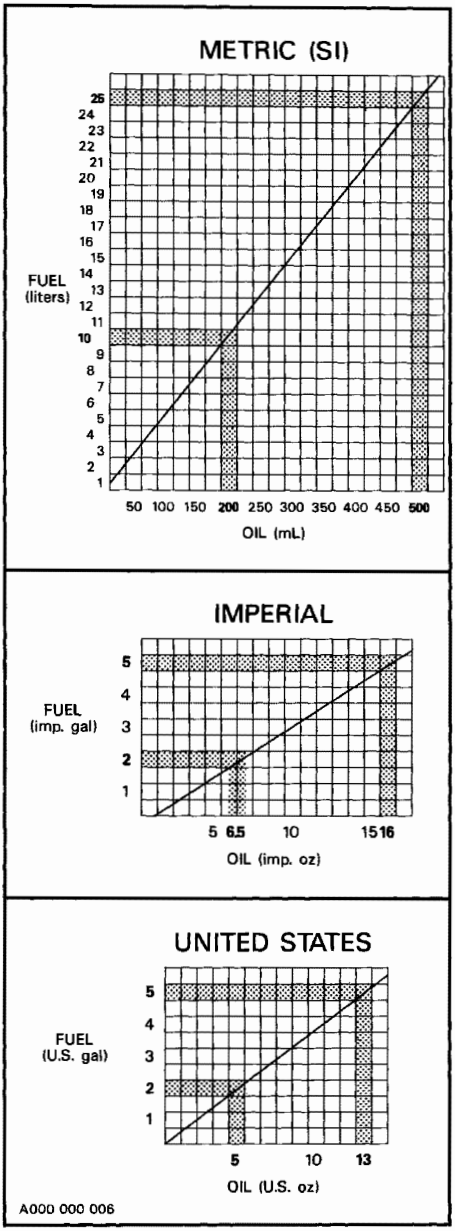


4. Add the remainder of the fuel.
5. Once again thoroughly agitate the container. Then using a funnel with a fine mesh screen to prevent the entry of foreign particles, pour the mixture into the snowmobile tank.

◆ **WARNING : To prevent fuel spillage in the engine compartment, a funnel must always be used when filling the gas tank.**

◯ **NOTE :** When using pre-mixed fuel, always shake the container thoroughly as the oil has a tendency to settle.

FUEL/OIL MIXING CHARTS (50 to 1 ratio)



PRE-START CHECK

Check points

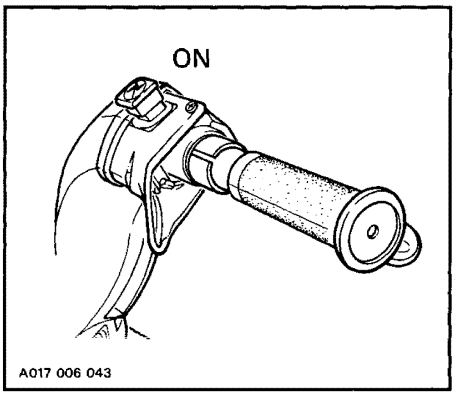
- ACTIVATE THE THROTTLE CONTROL LEVER SEVERAL TIMES to check that it operates easily and smoothly. The throttle control lever must return to idle position when released.
- Check that the ski and tracks are not frozen to the ground or snow surface and that the steering operates freely.
- Activate the brake control lever and make sure the brake fully applies before the brake control lever touches the handlebar grip. It must fully return when released.
- Check fuel level.
- Verify that the path ahead of the vehicle is clear of bystanders and obstacles.
- Clean and check operation of the headlight, taillight and brake light.

WARNING : Only start your snowmobile once all components are checked and functioning properly.

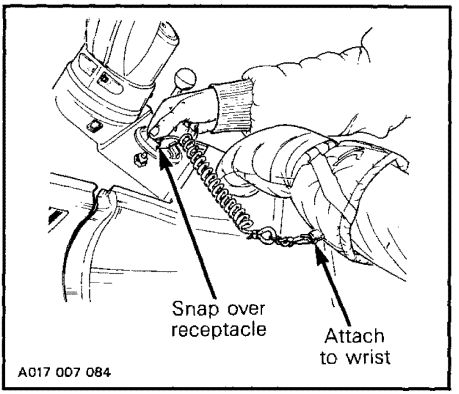
STARTING PROCEDURE

Test throttle control lever operation.

Check that the emergency cut-out switch is in the upper ON position.



Ensure the tether cut-out cap is in position and that the cord is attached to your clothing.



Activate the primer (two or three times).

NOTE : Priming is not necessary when the engine is warm.

CAUTION : Use of ether and/or other types of fluid as a starting aid can cause damage to engine components and is not recommended.

To start engine, follow either manual or electric starting procedure.

Manual starting

Insert the key in the ignition and turn to ON position.

Grasp manual starter handle firmly and pull slowly until a resistance is felt then pull vigorously. Slowly release the rewind starter handle.

◆ **WARNING : Do not apply throttle while starting.**

Electric starting

Insert key in ignition switch.

▼ **CAUTION : Never operate your snowmobile with the battery removed or disconnected, since the battery reduces voltage fluctuations, operating vehicle without it might cause instrument or bulb failure.**

Turn ignition key clockwise until starter engages. Release key immediately when engine has started. If engine does not start on first try, key must be turned fully back to OFF each time.

▼ **CAUTION : To avoid starter overheating, the cranking period should never exceed 30 seconds and a rest period should be observed between cranking cycles to let starter cool down.**

◆ **WARNING : Do not apply throttle while starting.**

◯ **NOTE :** If for some reason, the vehicle cannot be started electrically, place ignition key to ON position and start engine manually.

Before riding

Check operation of the emergency cut-out switch and tether switch. Restart engine.

◆ **WARNING : If engine does not shut-off when flicking the emergency cut-out switch and/or by pulling the tether cut-out cap, stop the engine by turning OFF the ignition key. Do not operate the vehicle, see your authorized dealer.**

Allow the engine to warm before operating at full throttle.

◯ **NOTE :** Engine is warm when operating temperature has been reached on temperature gauge. On vehicle without temperature gauge, let engine idling three to five minutes.

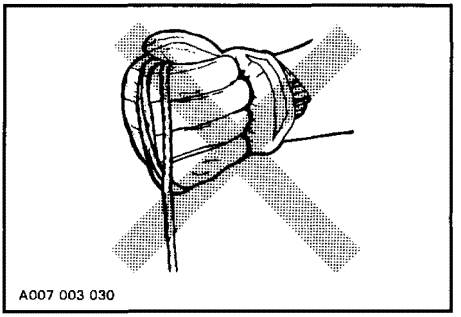
Emergency starting

Should the rewind starter rope fray and break, the engine can be started with the emergency starter rope supplied with the tool kit.

Remove console to ease installation of emergency rope around drive pulley and crank the engine.

◆ **WARNING : Damage to console or injury to the hand might be experienced if the console is not removed.**

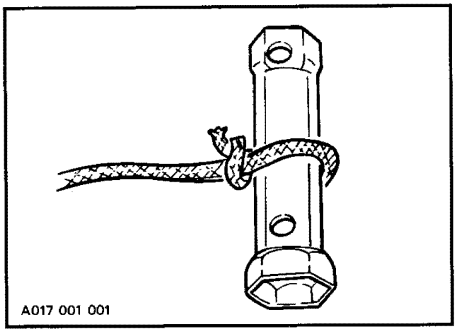
◆ **WARNING : Do not wind starting rope around your hand. Hold rope by the handle only.**

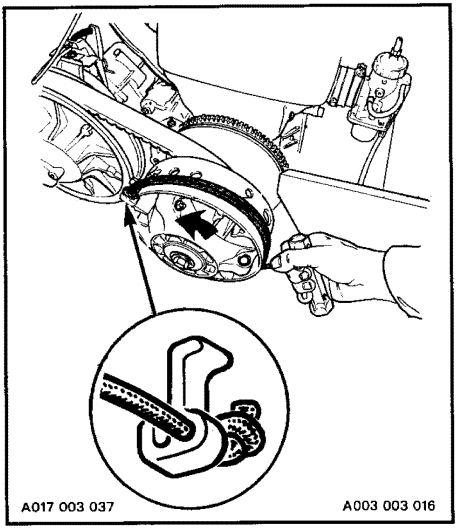


◆ **WARNING : Do not start the vehicle by the drive pulley unless it is a true emergency situation. Have the vehicle repaired as soon as possible.**

Attach emergency rope to any available handle and the starter clip supplied in the tool box. Wind the rope thightly around drive pulley.

◯ **NOTE :** The spark plug socket can be used as an emergency starter grip.



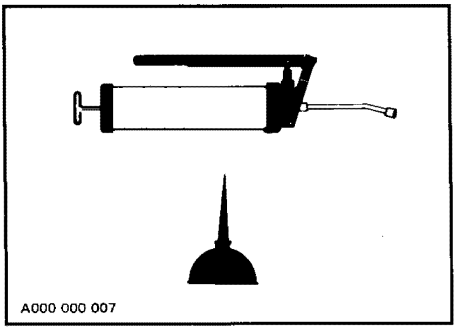


Start engine as per usual manual starting.

Reinstall console but not belt guard.

◆ **WARNING : When starting the vehicle in an emergency situation by the drive pulley, do not reinstall the belt guard.**

LUBRICATION



Frequency

Routine maintenance is necessary for all mechanized products, and the snowmobile is no exception. A weekly vehicle inspection contributes to the life span of the snowmobile.

It is recommended that the steering system and suspension be lubricated monthly or every 40 hours of operation. If the vehicle is operated in wet snow or in severe conditions these items should be lubricated more frequently.

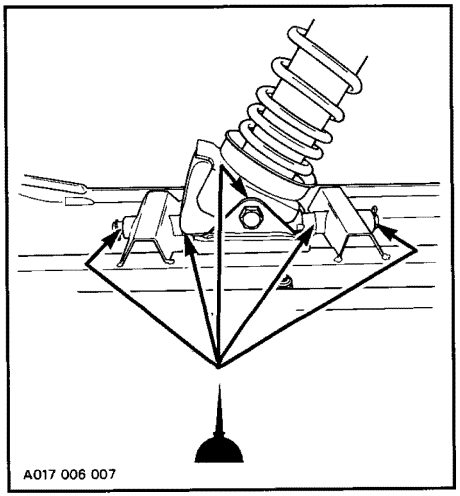
◆ **WARNING : Only perform such procedures as detailed in this manual. It is recommended that dealer assistance be periodically obtained on other components/systems not covered in this manual. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.**

◆ **WARNING : Do not lubricate throttle and/or brake cables and housings.**

When lubricating grease fitting, always use low temperature grease (P/N 413 7061 00).

Steering mechanism

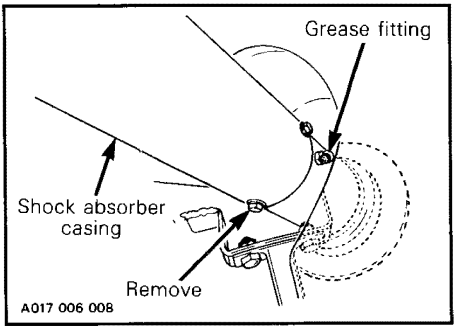
Using light machine oil, lubricate the longitudinal pivot of the ski and ski coupler bolt.



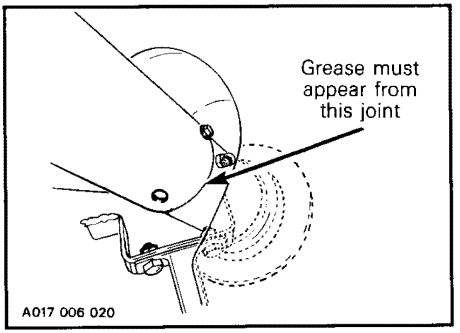
Allow the oil to run in and move ski several times to distribute lubricant.

From inside of cab, lubricate front shock system as follows :

Remove the screw shown.



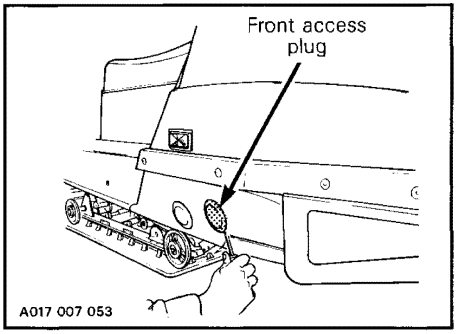
Lubricate until the grease appears from the hole, then, firmly plug the hole with a finger and slowly continue to lubricate until grease appears at the joint.



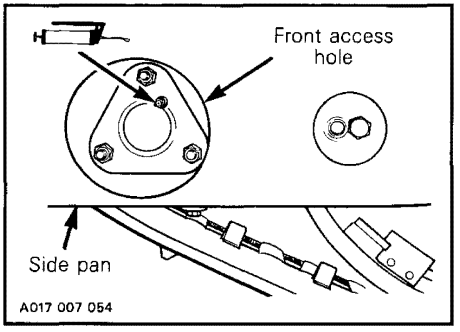
Oil tie rod ball joints and steering column upper and lower bushings.

Drive axles

Two access plugs are located on each side pan. Remove the front ones to get access to drive axles grease fitting.



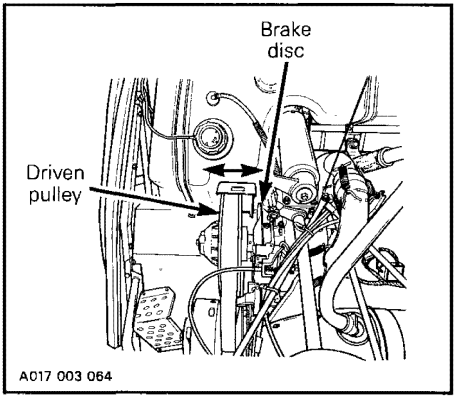
Lubricate using low temperature grease then reinstall access plugs.

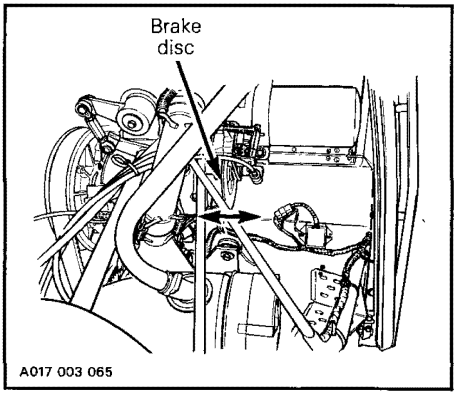


▼ **CAUTION : Ensure to lubricate both drive axles. A grease fitting is located on each side pan.**

Driven pulley and brake discs

Driven pulley and brake discs must slide freely on their shafts. See your authorized dealer.





Brake calipers

See your authorized dealer for proper lubrication of brake caliper ratchet wheel.

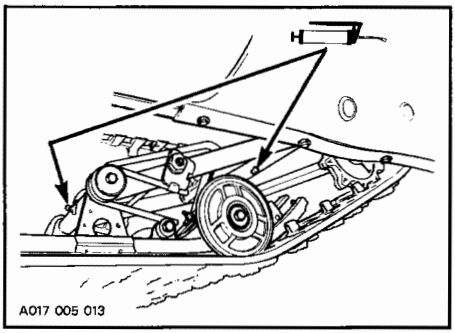
◆ **WARNING : Do not lubricate throttle and/or brake cables and housings.**

Slide suspension

Lubricate the following parts at grease fittings until grease appears at joints. Use low temperature grease only.

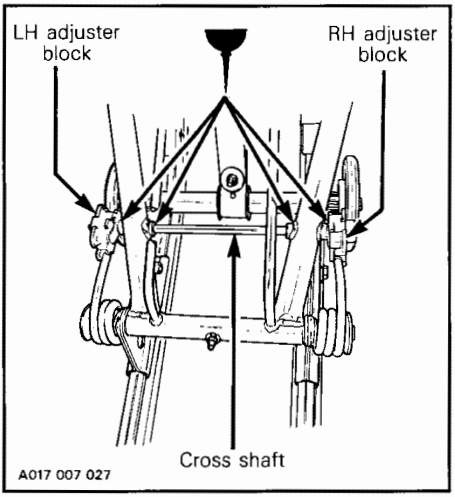
▼ CAUTION : Ensure to lubricate both suspension systems.

— Front upper and lower cross shafts.

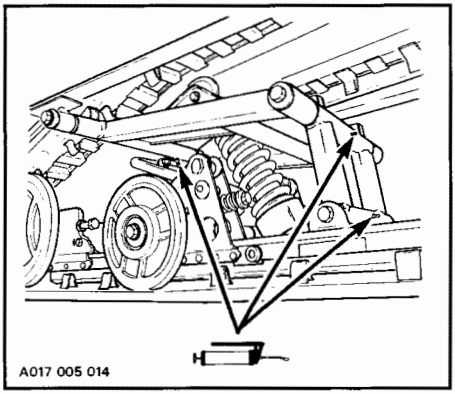


Oil adjuster blocks cross shaft.

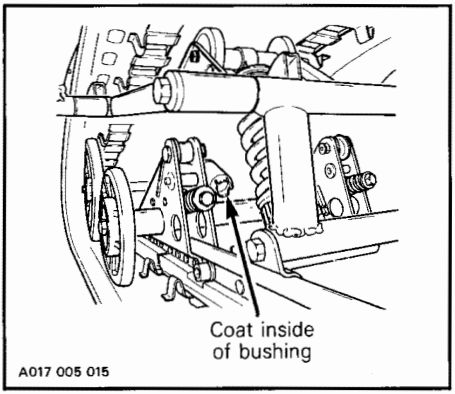
▼ CAUTION : Lubricate every week.



— Rear cross shaft and both shafts of shackle.

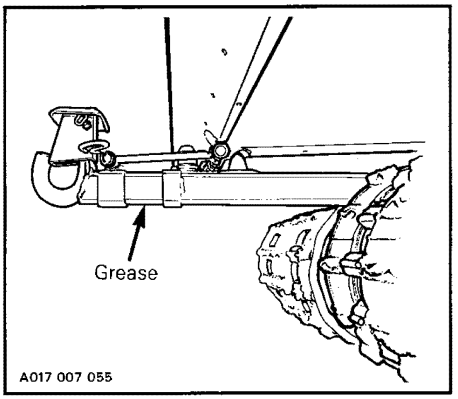


— Coat inside of stabilizer bar bushing of rear suspension with grease.



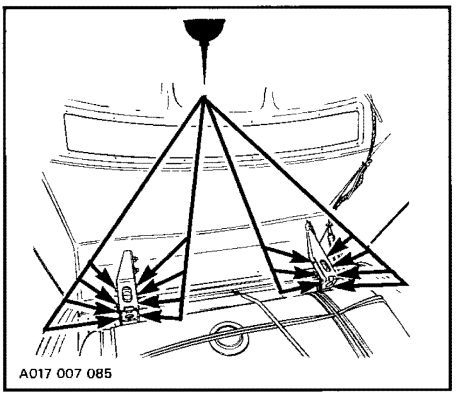
Hitch sliding action

— Lubricate with low temperature grease all around square tube.



Hood hinges

Oil both hinges.

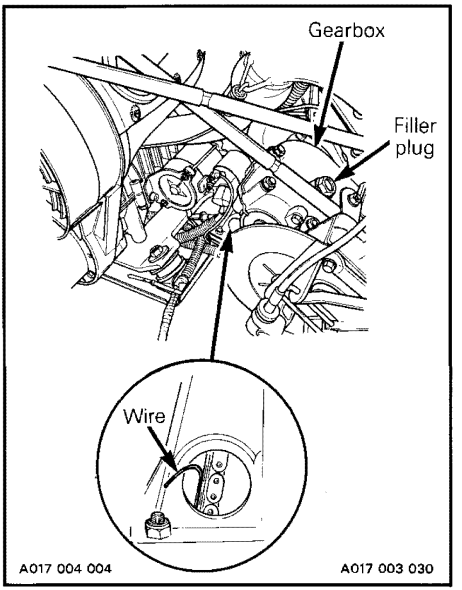


Gearbox oil level

The gearbox oil capacity is 500 mL (18 oz).

To check level :

Remove rubber inspection cover located on bottom right side of gearbox. Using a rigid piece of wire as dipstick, check oil level. Oil level must reach 92 mm (3-5/8 in) on dipstick.



To fill, remove filler plug from top of gearbox. Refill as required using Bombardier chaincase oil (P/N 413 8019 00, 250 mL (9 oz)).

MAINTENANCE

The following Maintenance Chart indicates regular servicing schedules to be performed by you or your authorized dealer. If these services are performed as suggested, your snowmobile will give many years of use.

◆ WARNING : Only perform such procedures as detailed in this manual. It is recommended that dealer assistance be periodically obtained on other components/systems not covered in this manual. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.

SERVICE AND MAINTENANCE CHART	Weekly or every 240 km (150 mi)	Monthly or every 800 km (500 mi)	Once a year or every 3200 km (2000 mi)	Refer to page
Drive belt condition	■			33
Brake condition	■			33
Brake adjustment		■		34
Spark plugs		■		34
Battery	■			35
Suspension condition		■		36
Stopper strap condition			■	36
Suspension adjustment		(as required)		36
Track condition		■		38
Track tension and alignment		(as required)		38
Drive pulley		■		39
Steering mechanism		■		39
Ski and runner wear and condition	■			39
Steering adjustment		■		40
Muffler attachment		■		40
Engine head nuts			■	40
Engine mount nuts			■	41
Carburetor adjustment			■	41
Fan belt			■	42
Drive chain tension			■	42
Headlamp beam aiming			■	43
General inspection		■		43

◯ NOTE : The 10-hour inspection is a very important part of proper service and maintenance.

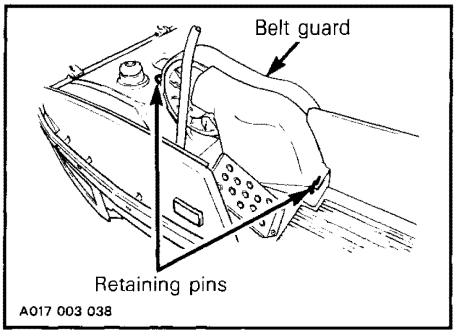
Belt guard removal

◆ **WARNING : Engine should be running only when belt guard is secured in place.**

1. Tilt the hood.

◯ **NOTE :** The console may be removed to give an easier access if desired.

2. Pull out both retaining pins.



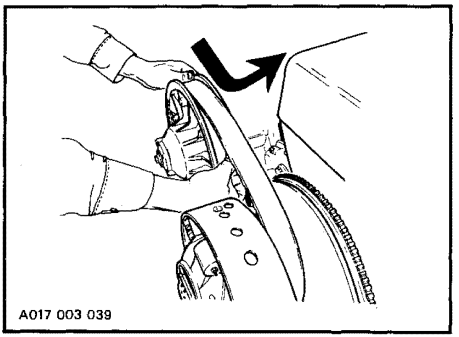
3. Lift and remove the belt guard.

Drive belt removal and installation

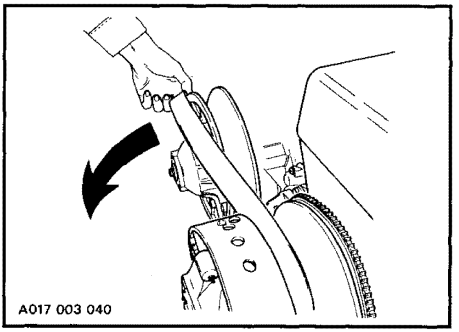
◆ **WARNING : Never start or run engine without the drive belt installed. Running an unloaded engine is dangerous.**

1. Tilt hood and remove the belt guard.
2. Open the driven pulley by twisting and pushing the sliding half. Hold in fully open position.

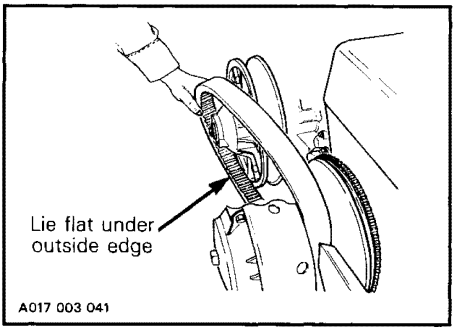
◯ **NOTE :** Put on the parking brake to facilitate the opening of driven pulley.



3. Slip slackened belt over the top edge of the driven pulley sliding half, opposite side of gearbox.



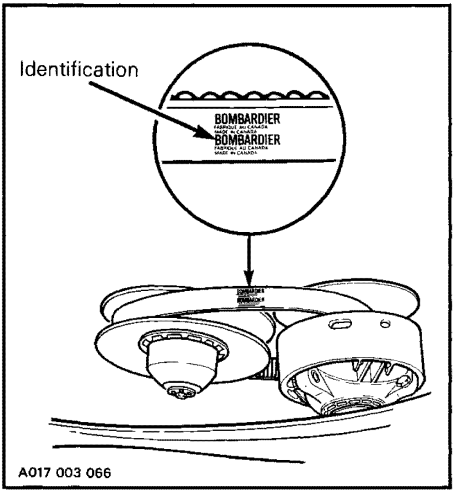
4. Completely remove the belt from the driven pulley and lie flat under the driven pulley outside edge.



5. Slip belt out from the drive pulley and remove completely from the vehicle.

To install the drive belt, reverse the procedure, however pay attention to the following :

The maximum drive belt life span is obtained when the belt has the proper rotation direction. Install it so the printed information on the belt can be read when facing pulleys.



▼ CAUTION : Do not force or use tools to pry the belt into place, as this could cut or break the cords in the belt.

Drive belt condition

Inspect belt for cracks, fraying or abnormal wear (uneven wear, wear on one side, missing cogs, cracked fabric). If abnormal wear is noted, probable cause could be pulley misalignment, excessive R.P.M. with frozen track, fast starts without warmup period, burred or rusty sheave, oil on belt or distorted spare belt. Contact your dealer.

Check the drive belt width. Replace the drive belt if width is less than 32 mm (1-1/4 in).

New drive belt

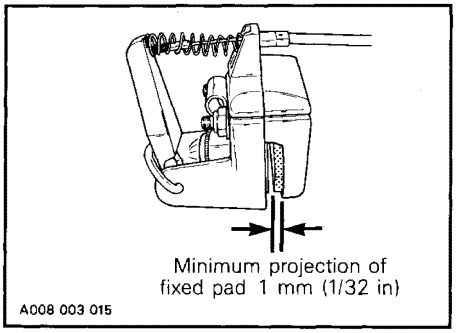
When installing a new drive belt, break-in period of 25 km (15 miles) is strongly recommended.

NOTE: Always store a spare belt in a manner to allow its natural shape to be maintained.

Brake condition

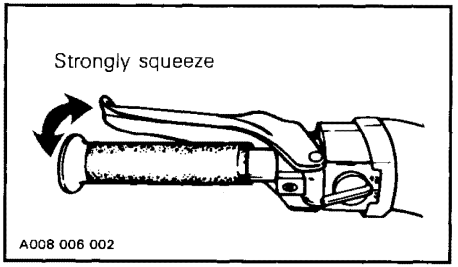
The brake mechanism on your snowmobile is an essential safety device. Keep this mechanism in proper working condition. Above all, do not operate your snowmobile without an effective brake system.

◆ WARNING : Brake pads must be replaced when fixed pad projects only 1 mm (1/32 in) from caliper. Replacement must be performed by an authorized dealer.

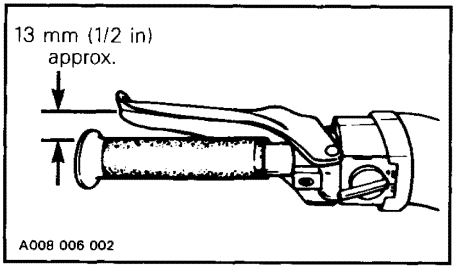


Brake adjustment

If a quicker brake response is desired, strongly squeeze the brake lever several times, this will actuate the self adjusting mechanism.



After the adjustment, brake should apply fully when lever is approximatively 13 mm (1/2 in) from handlebar grip. If not, do not tamper with the brake, contact an authorized dealer.

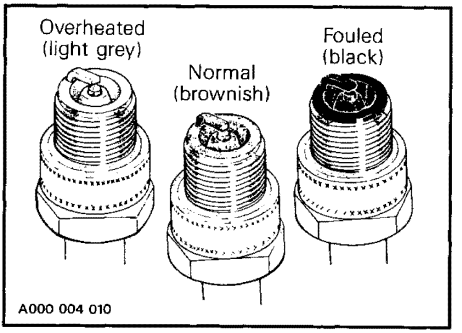


Spark plugs

Remove console to get access to spark plugs. Disconnect wires then remove spark plugs using socket supplied in tool box.

Check the condition of the plugs.

- A brownish tip reflects ideal conditions. (Carburetor adjustments, spark plug heat range, etc., are correct).
- A black insulator tip indicates fouling caused by : carburetor idle speed mixture and/or high speed mixture too rich, incorrect fuel mixture ratio, wrong type of spark plug (heat range), or excessive idling.
- A light grey insulator tip indicates a lean mixture caused by : carburetor high speed mixture adjusted too lean, wrong spark plug heat range, incorrect fuel mixture ratio, or a leaking seal or gasket.



▼ CAUTION : If spark plug condition is not ideal, contact your authorized dealer.

Check spark plug gap using a wire feeler gauge. It should be 0.4 mm (.016 in).

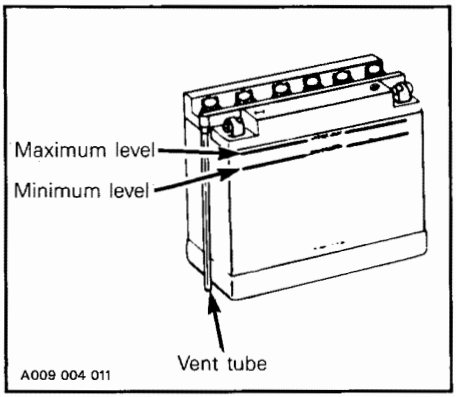
Reinstall spark plugs and connect wires.

Reinstall console.

Battery

NOTE : The battery is located under the seat.

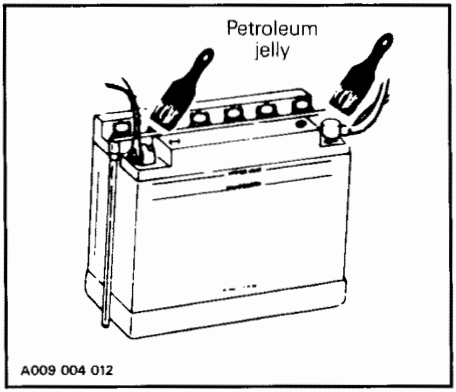
Check electrolyte level weekly. Electrolyte level must be at upper level line on battery casing.



If necessary add distilled water. Battery connections must also be free of corrosion. If cleaning is necessary remove corrosion using a stiff brush then clean with a solution of baking soda and water. Rinse and dry well.

CAUTION : Do not allow cleaning solution to enter battery. It will destroy the chemical properties of the electrolyte.

After reconnecting battery, coat battery terminals and connectors with petroleum jelly to prevent corrosion. Check that battery is well secured and that battery vent tube is not kinked or blocked.



WARNING : Vent tube must be free and open. If not, it will restrict ventilation and create a gas accumulation that could result in an explosion. Avoid skin contact with electrolyte. Gases given off by a battery being charged are highly explosive. Always charge in a well ventilated area. Keep battery away from cigarettes or open flames. Avoid skin contact with electrolyte.

CAUTION : Prior to charging the battery, always remove it from the vehicle to prevent electrolyte spillage. Be careful not to ground positive terminal with the chassis. Always disconnect black negative cable first.

NOTE : Always keep battery fully charged. (To charge, refer to ''Battery'' in ''Storage'' section).

Suspension condition

Visually inspect all suspension components including slider shoes, springs, wheels, suspension pivot etc.

NOTE : During normal driving, snow will act as a lubricant and coolant for the slider shoes. Extensive riding on ice or sanded snow, will create excessive heat build-up and cause premature slider shoe wear.

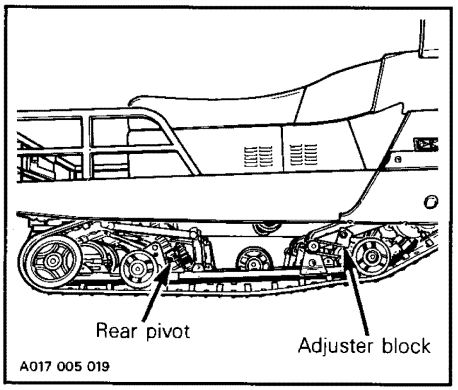
Stopper strap condition

Inspect strap for wear and cracks, bolt and nut for tightness. If loose inspect holes for deformation. Replace as required. Torque nut to 10 N•m (89 lbf•**in**).

Suspension adjustment

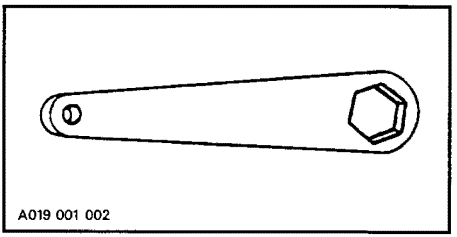
WARNING : Always ensure to perform the same ajustments on each rear suspension.

The rear suspension is adjustable for surface condition and steering effects. Besides the suspension rear pivot may be adjusted depending the operator requirement.

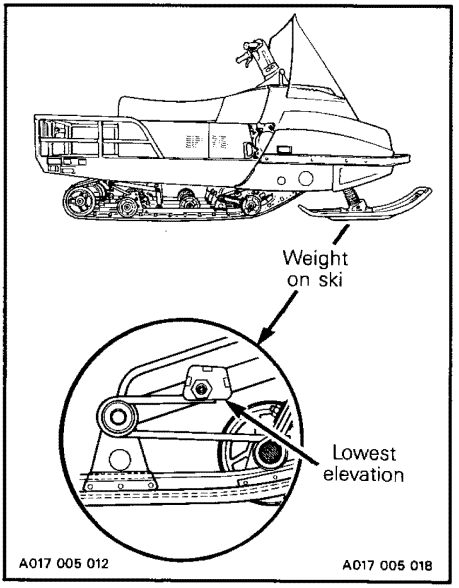


Adjuster blocks

Use the key supplied in the seat compartment.



When the front adjuster blocks are at the lowest elevation more weight is distributed to the ski thus giving a more positive steering.



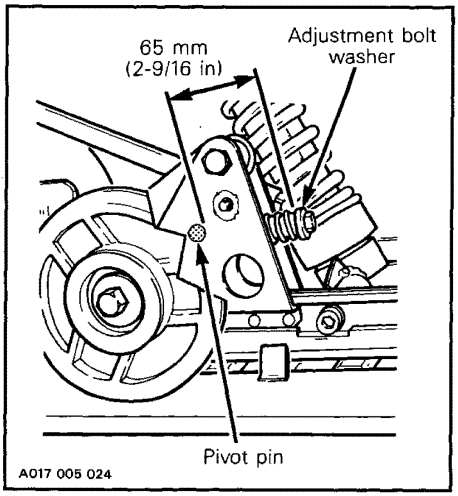
At the highest position, the weight is transferred to the track thus giving a better traction to pull a load.

NOTE : When turning the external adjuster block from one suspension, the internal one of the same suspension will automatically turn at the same time because they are linked together by a cross shaft.

CAUTION : Always turn adjuster block of the RH suspension in a counterclockwise direction and the one of the LH suspension, clockwise. Both suspension must always be set at the same elevation.

Suspension rear pivot

To prevent the rear portion of the track from digging in the snow when in reverse, the slide suspension is hinged and spring loaded. To check for correct preload, measure the distance from the outer edge of the pivot pin to the inner edge of the adjustment bolt washer. The distance should be 65 mm (2-9/16 in).



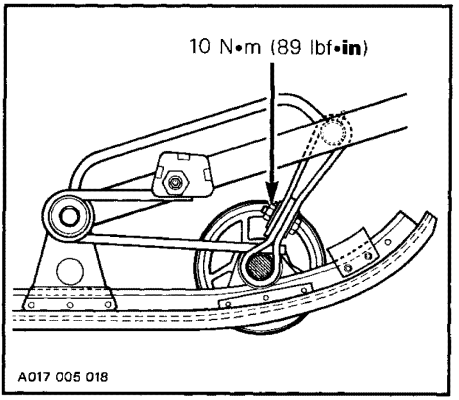
NOTE : The driver can customize this adjustment to meet its particular need. For instance should one is most of the time pulling a load and use rarely the reverse, the rear pivot could be "locked" by fully tighten the adjustment bolt thus getting a better traction and a more positive steering.

Stopper strap

The function of the suspension stopper strap is to control the transfer of vehicle weight **during acceleration**. The longer the belt, the more the weight will be transferred to the track, thus providing a better traction. Adjusting holes in the stopper strap allow to adjust to driver's requirement, field and/or snow conditions.

For normal use, adjust the stopper to its shorter length.

WARNING : Always torque the nut to 10 N•m (89 lbf•in).



NOTE : For deep snow or hill climbing, it is recommended to place the front adjuster blocks on the lowest position.

Track condition

Lift rear of vehicle and support it off the ground. (Place gear shift lever in forward position). With the engine **OFF**, rotate the track manually and inspect condition. If worn or cut, or if track fibers are exposed, or if missing or defective inserts are noted; contact your authorized dealer.

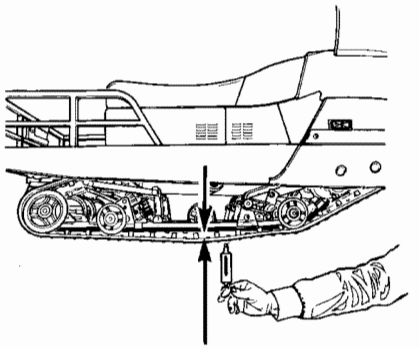
WARNING : Do not operate a snowmobile with a cut, torn or damaged track.

Track tension and alignment

WARNING : Always ensure to perform the same adjustments on each rear suspension.

Tension :

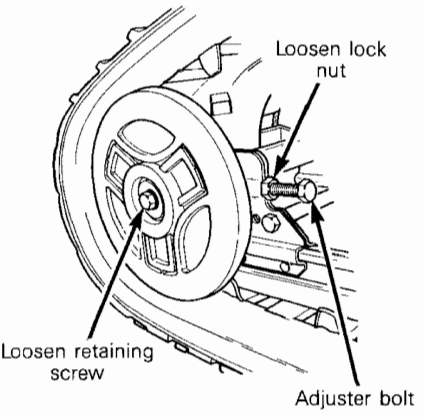
Lift the rear of vehicle and support with a mechanical stand. The gap should be 30 mm (1-3/16 in) between the slider shoe and the bottom inside of the track when applying a downward pull of 7.3 kg (16 lb). The gap should be measured close to suspension center idler wheel. If the track tension is too loose, the track will have a tendency to thump.



A017 005 019

CAUTION : Too much tension will result in power loss and excessive stresses on suspension components.

If necessary to adjust ; loosen the rear idler wheel retaining screw and the adjuster bolt lock nut; then loosen or tighten the adjuster bolts located on the inner side of the rear idler wheels. If correct tension is unattainable, contact an authorized dealer.

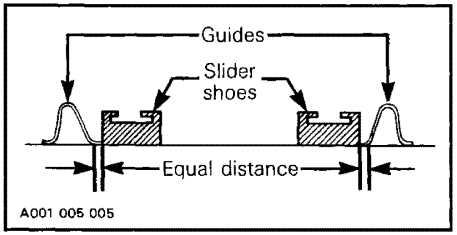


A023 005 002

NOTE : Track tension and alignment are inter-related. Do not adjust one without the other.

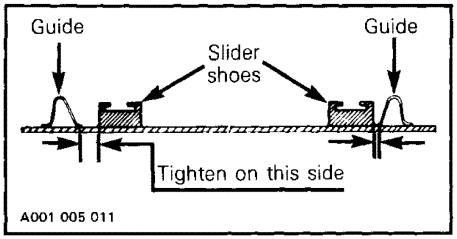
Alignment

Start the engine and accelerate slightly so that track barely turns. This must be done in a short period of time (one to two minutes). Check that the track is well centered ; equal distance on both sides between edges of track guides and slider shoes.

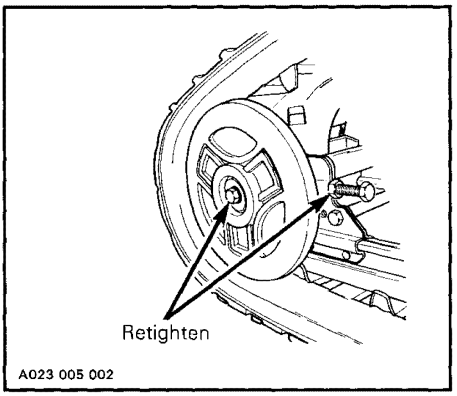


WARNING : Before checking track alignment, ensure that the tracks are free of all particles which could be thrown out while track is rotating. Keep hands, tools, feet and clothing clear of track. Ensure no one is standing in close proximity to the vehicle.

To correct, **stop the engine**, loosen the rear idler wheels retaining screws then loosen the lock nuts and tighten the adjuster bolt on side where the slider shoe is the farthest from the track insert guides.



Tighten lock nuts and the idler wheel retaining screws.



Restart engine, rotate track **slowly** and recheck alignment.

Drive pulley

This vehicle is equipped with the TRA drive pulley (Total Range Adjustable).

The clutch is factory adjusted to provide the best performance under most riding conditions. However certain conditions, such as deep snow, high altitude, pulling a load, etc., may require a different adjustment. Contact the authorized dealer for adjustment.

Steering mechanism

Inspect steering mechanism for tightness of components (steering arms, ball joints, etc). If necessary, replace or retighten. Check longitudinal ski pivot free movement, condition of ski and ski runners. Replace ski runners if worn.

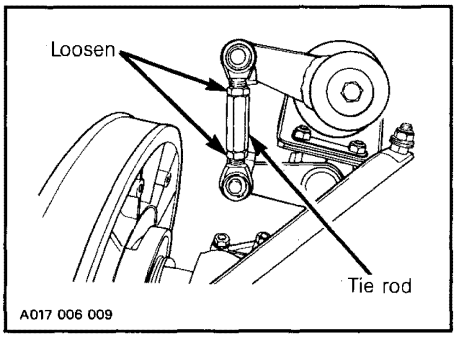
WARNING : Check the condition of the ski and the ski runners. Replace if runners are more than half worn.

Steering adjustment

Ski should be perpendicular to handle bar. To align :

— Place ski parallel to vehicle.

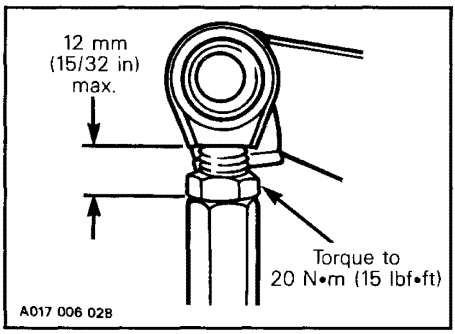
— Loosen lock nuts of the tie rod.



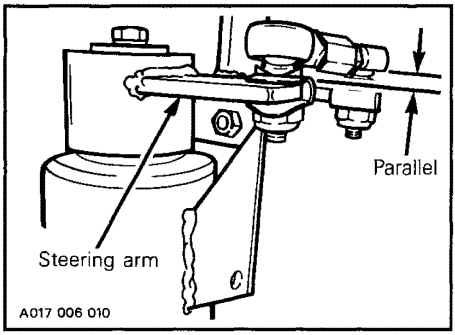
— Turn tie rod manually until the handlebar is horizontal.

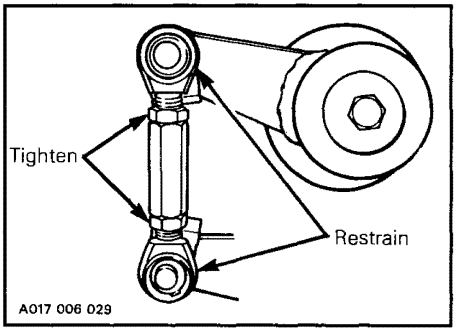
— Firmly retighten the lock nuts.

◆ WARNING : The maximum ball joint external threaded length not engaged in the tie rod must not exceed 12 mm (15/32 in). Torque lock nut to 20 N•m (15 lbf•ft).



◆ WARNING : The ball joint socket must run parallel with the steering arm and the other ball joint. The socket must be restrained when tightening the tie rod end lock nuts.





Muffler attachment

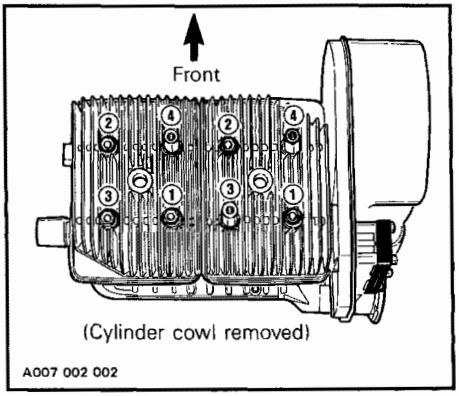
The engine / exhaust system parts are vital toward efficient muffler function. Check all attachments and muffler ball joint. Replace the springs and / or tighten if necessary.

▼ CAUTION : Do not operate vehicle with muffler disconnected otherwise serious engine damage will occur.

Engine head nuts

With the ENGINE COLD, check that the engine head nuts are tight and equally torqued to 22 N•m (16 lbf•ft).

Respect tightening sequence as follows :



IMPORTANT : The engine head nut torque should be checked after the first 5 hours of operation.

Engine mount nuts

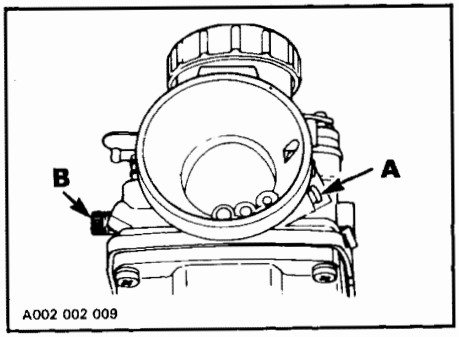
Check the engine mount nuts for tightness. Retighten if necessary to 38 N•m (28 lbf•ft).

Carburetor adjustment

▼ CAUTION : Never operate your snowmobile with the air intake silencer disconnected. Serious engine damage will occur if this notice is disregarded.

A) Air screw adjustment

Completely close the **air** screw (until a slight seating resistance is felt) then back off screw 1-1/2 turn.



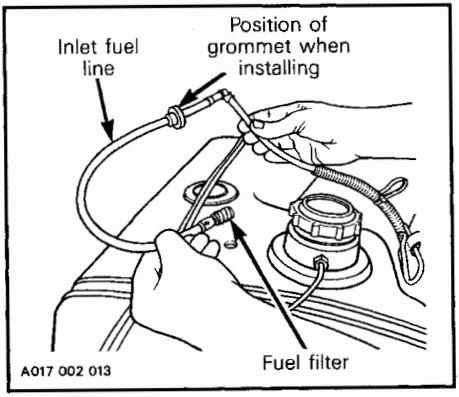
B) Idle speed adjustment

Turn the **idle speed** screw clockwise until a slight contact is felt then continue turning two additional turns. This will provide a preliminary idle speed setting. Start engine and allow it to warm then adjust the idle speed by turning the idle speed screw clockwise or counterclockwise.

Idle speed : 1800-2000 RPM.

Fuel filter replacement

Remove fuel line grommet from top of fuel tank and pull out inlet fuel line from tank.



Replace fuel filter. To facilitate the fuel line installation, slide grommet on fuel line about 50 mm (2 in) away from elbow than install grommet on fuel tank and push down elbow through grommet.

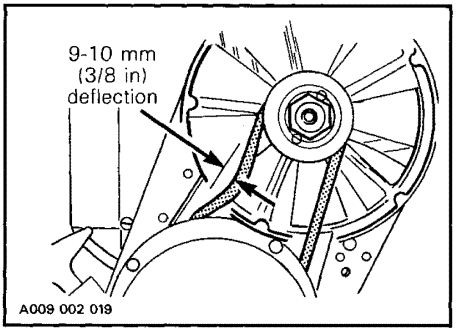
High altitude kit

Snowmobiles used in high altitude areas (1200 m (4000 ft) and up) are subjected to lose power as temperature, elevation and snow condition are different. The carburetor and power train have to be recalibrated to meet those particular requirements. Ask your authorized dealer for more information on high altitude kit availability.

▼ CAUTION : Do not change original jetting if using vehicle below 1200 m (4000 ft).

Fan belt

Inspect belt for cracks, uneven wear, etc. Check fan belt tension, 9-10 mm (3/8 in) deflection should exist.



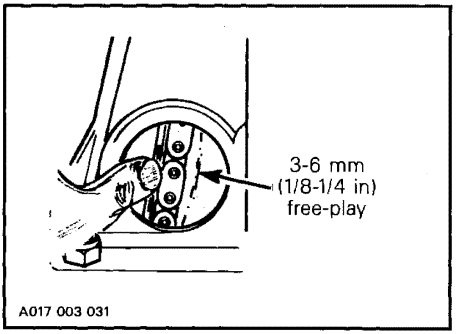
If belt seems damaged or if tension is incorrect, contact the dealer immediately.

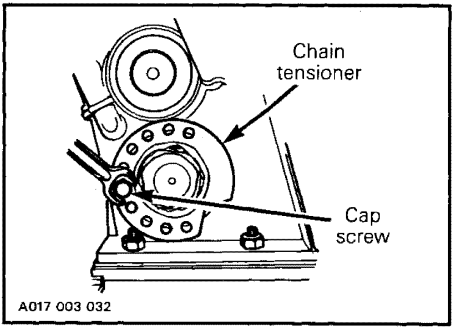
◆ WARNING : If fan protector is removed, always reinstall after servicing.

Drive chain tension

Run vehicle forward so that true free-play can be taken. Check tension then turn driven pulley 1/2 turn towards and recheck. Starting from maximum reading, adjust chain tension to obtain 3-6 mm (1/8-1/4 in) free-play.

Remove capscrew locking chain tensioner in place. (Tensioner is located at bottom left of gearbox.)



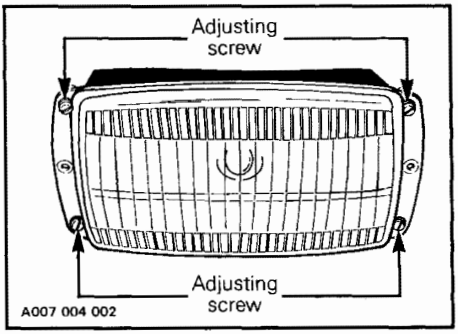


Rotate the tensioner as required to obtain correct chain tension.

Reinstall capscrew to lock chain tensioner in place.

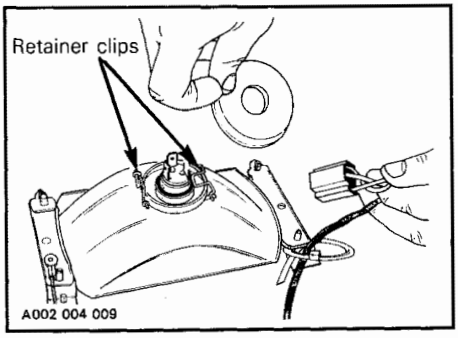
Headlamp beam aiming

To adjust, remove the four caps, turn upper or lower adjusting screws to obtain desired beam position.



Bulb replacement

If headlamp is burnt, tilt hood. Unplug connector from headlamp. Remove rubber boot and unfasten bulb retainer clips. Detach bulb and replace.



If taillight bulb is burnt, remove the red plastic lens and replace bulb.

◆ **WARNING : Always check light operation after bulb replacement.**

General inspection

Check electrical wiring and components, retighten loose connections. Check for stripped wires or damaged insulation. Thoroughly inspect the vehicle and tighten loose bolts, nuts and linkage.

◆ **WARNING : Check the condition of the ski and the ski runners. Replace if runners are more than half worn.**

STORAGE

It is during summer, or when a vehicle is not in use for any length of time that proper storage is a necessity. Storage of the snowmobile during long periods of inactivity consists of checking and replacing missing, broken or worn parts, proper lubrication and treatment to insure that parts do not become rusted ; cleaning items such as carburetor of oil mixture, to prevent gum and varnish formation within the carburetor, and in general, preparing the vehicle so that when the time comes to use the snowmobile again it will be in top condition.

◆ **WARNING : Only perform such procedures as detailed in this manual. It is recommended that dealer assistance be periodically obtained on other components/systems not covered in this manual. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.**

Tracks

Inspect tracks for wear, cuts, missing track guides or broken rods. Make any necessary replacement.

◆ **WARNING : Do not operate a snowmobile with a cut, torn or damaged track.**

Lift the rear of vehicle until track is clear of ground, then support with a brace or trestle. The snowmobile should be stored in such a way that the tracks do not stay in contact with cement floor or bare ground.

◯ **NOTE :** The tracks should be rotated periodically, (every 40 days). Do not release track tension.

▼ **CAUTION : To prevent track damage, temperature in the storage area must not exceed 38°C (100°F).**

Suspension

Remove any dirt or rust. Grease all components equipped with grease fittings. Wipe off surplus. Replace worn slider shoes.

Ski and runner

Wash or brush all dirt or rust accumulation from the ski. Lubricate ski longitunal pivot.

◆ **WARNING : Check the condition of the ski and ski runners. Replace runner if worn more than half.**

Controls

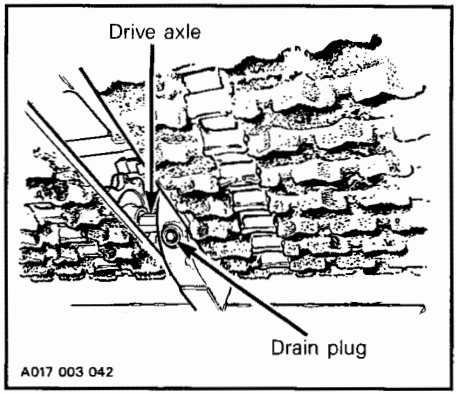
Lubricate steering mechanism. Inspect components for tightness (spring coupler bolt, steering arm locking bolts, ball joints, etc.). Tighten if necessary. Oil moving joints of the brake mechanism.

◆ **WARNING : Do not lubricate throttle and/or brake cable or housings. Avoid getting oil on the brake linings.**

Coat electrical connections and switches with silicone dielectric grease (P/N 413 7017 00). If unavailable, use petroleum jelly.

Gearbox

Drain gearbox and refill with 500 mL (18 oz) of fresh Bombardier chaincase oil (P/N 413 8019 00-250 mL). The drain plug is located underneath the front part of the vehicle.



Drive pulley

Inspection and cleaning must be performed by an authorized dealer at the end of each season.

Engine

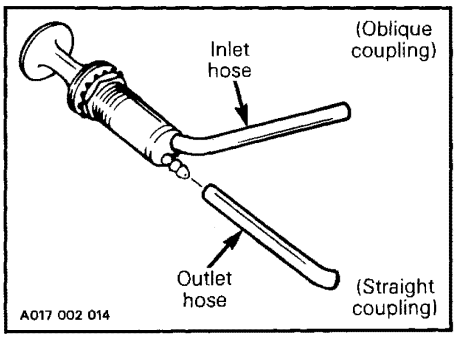
Engine internal parts must be lubricated to protect them from possible rust formation during the storage period.

To perform the storage procedures proceed as follows:

1. Lift the rear of the vehicle and support it off the ground.

◆ WARNING : Ensure the tracks are free of all particles which could be thrown out while it is rotating. Keep hands, tools, feet and clothing clear of tracks. Ensure no one is standing in close proximity to the vehicle.

2. Start the engine and allow it to run at idle speed until the engine reaches its operational temperature.
3. Stop the engine.
4. To prevent gasoline from draining, primer button should be pushed all the way.
5. Disconnect the outlet primer hose from the primer valve.



6. Insert storage oil (P/N 496 0141 00) can hose into primer outlet hose.
7. Restart engine and run at idle.
8. Inject storage oil until the engine dies or until a sufficient quantity of oil has entered the engine (approximately 30 seconds).
9. With the engine stopped, remove the spark plugs and pour approximately 85 mL (3 imp oz) of Bombardier oil into each cylinder.
10. Crank slowly two or three revolutions to lubricate cylinders.
11. Reinstall the spark plus and the outlet primer hose.

Do not run engine during storage period.

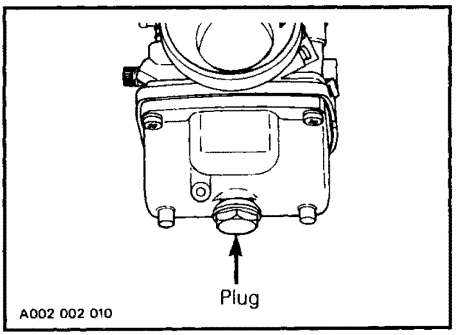
Fuel tank and carburetor

Remove the cap then, using a syphon, remove the gasoline from tank.

◆ WARNING : Gasoline is flammable and explosive under certain conditions. Always manipulate in a well ventilated area. Do not smoke or allow open flames or sparks in the vicinity.

The carburetor must be dried out completely to prevent gum formation during the storage period.

Once the fuel tank is emptied, remove the float chamber drain plug from carburetor. Drain carburetor and reinstall plug.



Check all fuel lines, replace if necessary.

Battery

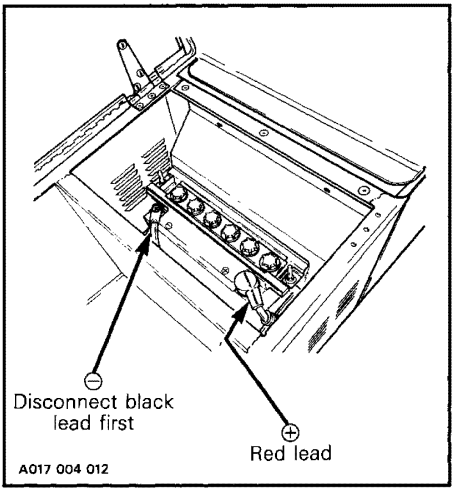
NOTE : The battery is located in the seat compartment.

The battery should be removed from vehicle when storing vehicle.

To remove, proceed as follows :

1. Disconnect the battery cables and remove the battery retainer cover.

CAUTION : To avoid possibility of grounding the positive terminal with the chassis, always disconnect black negative lead first.



2. Disconnect vent tube.
3. Lift out the battery. Before storing the battery, clean outside surface with a solution of baking soda and water. Remove all deposits from posts then rinse with clear tap water.

CAUTION : Do not allow cleaning solution to enter battery interior since it will destroy the electrolyte.

Check electrolyte level. Refill as necessary with distilled water. Fully charge battery at a maximum rate of 2.0 amps.

CAUTION : Prior to charging the battery, always remove it from the vehicle to prevent electrolyte spillage.

WARNING : Gases given off by a battery being charged are highly explosive. Always charge in a well ventilated area. Keep battery away from cigarettes or open flames. Avoid skin contact with electrolyte.

NOTE : To prevent battery from discharging, store it on a wooden shelf in a cool, dry place. Recharged at least every 40 days.

Chassis

Clean the vehicle thoroughly, removing all dirt and grease accumulation.

CAUTION : Plastic alloy components such as fuel tank, windshield, controls, etc., can be cleaned using mild detergents or isopropyl alcohol and a soft clean cloth. Never clean plastic parts with strong detergent, degreasing agent, paint thinner, acetone, etc. Do not apply isopropyl alcohol directly on decals.

Inspect hood and repair damage. Repair kits are available at your authorized Bombardier dealer.

Touch up all metal spots where paint has been scratched off. Spray all metal parts of vehicle with metal protector. Wax the hood.

NOTE : Apply wax on glossy finish of hood only. Protect the vehicle with a cover to prevent dust accumulation during storage.

▼ CAUTION : Cover the snowmobile with an opaque tarpaulin. This caution will prevent the sun rays or grime from affecting the plastic components and the vehicle finish.

General inspection

Check electrical wiring and components, retighten loose connections. Check for stripped wires or damaged insulation. Thoroughly inspect the vehicle and tighten loose bolts, nuts and linkage.

◯ **NOTE :** Leave the drive belt off the pulleys for the entire storage period.

Suspension stopper strap

Replace annually and/or as stopper strap condition dictates. Torque nut to 10 N•m (89 lbf•**in**).

PRE-SEASON PREPARATION

To simplify the pre-season preparation we have drawn up a small chart. The chart indicates servicing points to be performed by you and your authorized dealer.

IMPORTANT : Observe all Warnings and Cautions mentioned throughout this manual which are pertinent to the item being checked. When component conditions seem less than satisfactory, replace with genuine Bombardier parts.

PRE-SEASON PREPARATION CHART	To be performed by dealer ● To be performed by owner ○
Change spark plugs*	○
Check gear box oil level	○
Check drive chain tension	○
Check steering adjustment/ski runner and ski longitudinal pivot	○
Replace fuel filter (located inside fuel tank)	○
Check fuel lines and attaching points	○
Check track condition, tension and alignment	○
Check and lubricate suspension	○
Inspect drive belt and install	○
Check throttle cable for free operation	○
Inspect brake condition and operation	○
Check electrical wiring	○
Inspect condition of starting rope	○
Check tightness of all bolts, nuts and linkage	○
Refill gas tank	○
Inspect seals for possible cuts or leaks	○
Test battery, clean and install	●
Set engine timing	●
Adjust carburetor	●
Check fan belt condition and tension	●
Check pulleys, verify components and clean, lubricate driven pulley	●
Lubricate transmission shafts for brake discs and driven pulley sliding action	●
Lubricate brake caliper ratchet wheel	●

○ *NOTE : Before installing new spark plugs, it is suggested to burn excess storage oil by starting the engine, using the old spark plugs.

▼ **CAUTION : Only perform this procedure in a well ventilated area.**

TROUBLESHOOTING

SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
Engine turns over but fails to start	1. Ignition switch, emergency cut-out switch or tether switch is in the off position	Place all switches in the "run" or "on" position.
	2. Mixture not rich enough to start cold engine	Check fuel tank level and check starting procedure, particularly use of the primer.
	3. Flooded engine. (Spark plug wet when removed)	Do not over prime. Remove wet spark plug, turn ignition to OFF and crank engine several times. Install clean dry spark plug. Start engine following usual starting procedure. If engine continues to flood, see your authorized dealer.
	4. No fuel to the engine. (Spark plug dry when removed)	Check fuel tank level ; turn fuel on if applicable ; check fuel filter ; replace if clogged ; check condition of fuel and impulse lines and their connections. A failure of the fuel pump or carburetor has occured. Contact your authorized dealer.
	5. Spark plug/ignition (no spark)	Check that emergency cut-out switch is at the upper position (ON) and the tether cut-out switch cap is snapped over the receptacle. Check for fouled or defective spark plug. Disconnect spark plug wire, unscrew plug and remove from cylinder head. Reconnect wire and ground exposed plug on engine cowl, **being careful to hold away from spark plug hole**. Follow engine starting procedure and check for spark. If no spark appears, replace spark plug. If trouble persists, contact your authorized dealer.

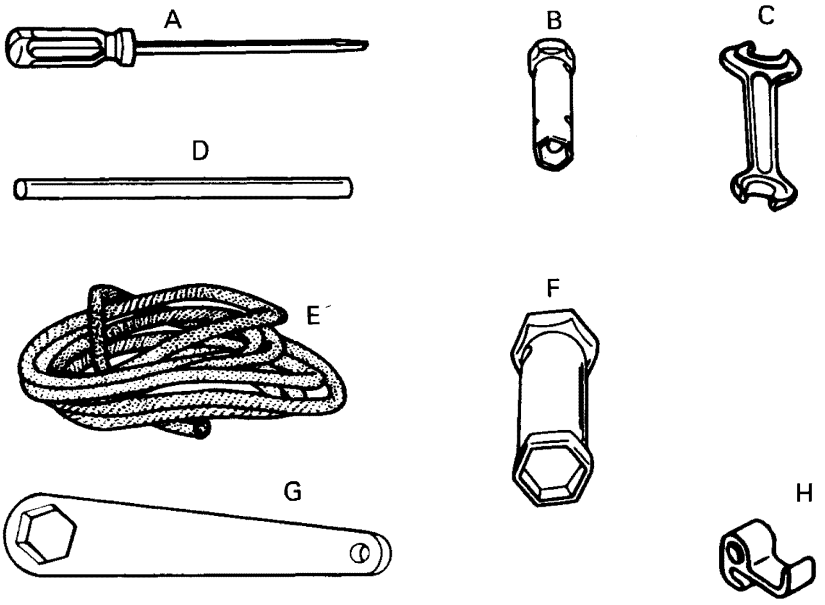
SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
	6. Engine compression	As the engine is pulled over with the recoil starter, "cycles" of resistance should be felt as each piston goes past top dead center. If no pulsating resistance is felt, it suggest a major loss of compression. Contact your authorized dealer.
Engine lacks acceleration or power	1. Fouled or defective spark plug	Check item 5 of "Engine turns over but fails to start."
	2. Lack of fuel to engine	Check item 4 of "Engine turns over but fails to start."
	3. Carburetor adjustments	Contact your authorized dealer.
	4. Drive belt worn too thin	If the drive belt has lost more than 3 mm (1/8 in) of its original width, it will affect vehicle performance.
	5. Drive and driven pulleys require servicing.	Contact your authorized dealer.
	6. Engine is overheating	If applicable, check coolant level ; check pressure cap ; check thermostat. Check for air locks in cooling system. If applicable, check fan belt and its tension ; clean cooling fins of engine ; if heating persists, contact your authorized dealer.

SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
Engine backfire	1. Faulty spark plug	See item 5 of "Engine turns over but fails to start."
	2. Water in fuel	Drain fuel system and refill with clean fuel.
	3. Engine is running too hot	See item 6 of "Engine lacks acceleration or power."
	4. Ignition timing is incorrect or there is an ignition system failure	Contact your authorized dealer.
Snowmobile cannot reach full speed	1. Drive belt.	Check item 4 of "Engine lacks acceleration or power."
	2. Incorrect track adjustment	See maintenance section for proper alignment and tension settings.
	3. Pulleys misaligned	Contact your authorized dealer.
	4. Engine	See items 1, 2, 3 & 6 of "Engine lacks acceleration or power."

TOOLS

As standard equipment each new snowmobile is supplied with basic tools such as screwdriver, wrenches, emergency starting rope, etc.

Standard Tools



A. Screwdriver
B. Socket 10/13 mm
C. Open end wrench 10/13 mm
D. Socket wrench handle
E. Emergency starting rope
F. Socket 21/26 mm
G. Hexagonal wrench (adjuster blocks)
H. Emergency starter clip

SPECIFICATIONS

	ALPINE II 503
ENGINE	
Type	503
No. of cylinders	2
Bore	72 mm (2.835 in)
Stroke	61 mm (2.402 in)
Displacement	496.7 cm^3 (30.27 in^3)
Compression ratio (corrected)	6.3:1
Maximum horsepower RPM*	5250
Carburetor	Variable Venturi, float type
Carburetor adjustment :	
— air screw	1-1/2 turn
— idle speed	1800-2000 RPM
Torque :	
— engine head nuts	22 N•m (16 lbf•ft)
— crankcase nuts	22 N•m (16 lbf•ft)
— magneto ring nut	90 N•m (66 lbf•ft)
— fan nut	65 N•m (48 lbf•ft)
— crankcase/engine support nuts	38 N•m (28 lbf•ft)
— exhaust manifold bolts	13 N•m (17 lbf•ft)
— electrical starter bolts	M5 : 4 N•m (35 lbf•**in**)
Fan belt free-play	8-9 mm (3/8 in)
CHASSIS	
Overall length	306.4 cm (120.6 in)
Overall width	110.6 cm (43.5 in)
Overall height	147.3 cm (58 in)
Ski alignment	Ski perpendicular to handlebar
Torque :	
— steering column/handlebar	26 N•m (19 lbf•ft)
Mass	347 kg (765 lb)
Bearing area	14144 cm^2 (2192 in^2)
Ground pressure	2.45 kPa (.349 lb/in^2)

**The maximum horsepower RPM is applicable with engine on the vehicle. It may be different under certain circumstances and Bombardier Inc. reserves the right to modify it without any obligation.*

	ALPINE II 503
POWER TRAIN	
Track :	
– quantity	2
– width	41.9 cm (16.5 in)
– length	353 cm (139 in)
– tension	30 mm (1-3/16 in) between slider shoe and bottom inside of track with a downward pull of 7.3 kg (16 lbf)
– alignment	Equal distance between edge of track guides and slider shoe
Standard gear ratio	17/46
Gearbox chain tension	3-6 mm (1/8-1/4 in)
Drive belt :	
– number	570 2777 00
– max. width	34.9 mm (1-3/8 in)
– min. width	32 mm (1-1/4 in)
Chaincase/gearbox oil capacity	500 mL (18 oz)
ELECTRICAL	
Lighting system (output)	12 V, 160 W
Bulb :	
– headlamp	60/60 W
– tail/stop	5/21 W
– speedometer	5 W
Fuse :	
– starter solenoid	30 A
Spark plug :	
– type	NGK BR8ES
– gap	0.4 mm (.016 in)
Ignition timing :	
– timing mark (B.T.D.C.)	2.29 mm (.091 in)
– stroboscopic timing	6000 RPM
FUEL	
Gas type	Regular leaded of unleaded
Fuel tank capacity	
– S.I.	34.2 L
– Imp.	7.5 gal
– U.S.	9 gal
Premixed fuel/oil	
– oil type	Blizzard oil
– ratio	50:1
BRAKE	
Type	Disc, self-adjusting
Lining minimum thickness	When only 1 mm (1/32 in) of fixed pad projects from caliper.
Control lever adjustment	13 mm (1/2 in) minimum distance from handlebar grip when fully applied.

Bombardier Inc. reserves the right to make changes in design and specifications and/or to make additions to, or improvements in its product without imposing any obligation upon itself to install them on its products previously manufactured.

SI* METRIC INFORMATION GUIDE

BASE UNITS

DESCRIPTION	UNIT	SYMBOL
length	meter	m
mass	kilogram	kg
force	Newton	N
liquid	liter	L
temperature	Celsius	°C
pressure	kilopascal	kPa
torque	Newton meter	N•m
speed	kilometer per hour	km/h

PREFIXES

PREFIX	SYMBOL	MEANING	VALUE
kilo	k	one thousand	1000
centi	c	one hundredth	0.01
milli	m	one thousandth	0.001
micro	μ	one millionth	0.000001

CONVERSION FACTORS

TO CONVERT	TO †	MULTIPLY BY
in	mm	25.4
in	cm	2.54
in^2	cm^2	6.45
in^3	cm^3	16.39
ft	m	0.3
oz	g	28.35
lb	kg	0.45
lbf	N	4.4
lbf•**in**	N•m	0.11
lbf•ft	N•m	1.36
lbf•ft	lbf•**in**	12
PSI	kPa	6.89
imp. oz	U.S. oz	0.96
imp. oz	mL	28.41
imp. gal	U.S. gal	1.2
imp. gal	L	4.55
U.S. oz	mL	29.57
U.S. gal	L	3.79
MPH	km/h	1.61
Fahrenheit	Celsius	(°F − 32) ÷ 1.8
Celsius	Fahrenheit	(°C × 1.8) + 32

*The international system of units abbreviates "SI" in all languages.

†To obtain the inverse sequence, divide by the given factor. To convert "mm" to "in", divide by 25.4.

NOTES